Standardization

News Magazine of the American Standards Association, Incorporated

FEATURED—

Building Exits

Mica: world accord sought for strategic material

Linemen's Equipment

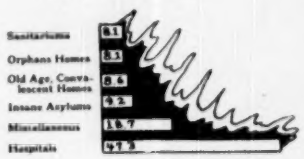
APRIL 1950

American Standards Association
Incorporated

Marginal Notes

Save the Patients!

When headlines shout the news that again patients have died in institution fires—in hospitals, sanitariums, orphan homes—one wonders whether anything is being done to prevent these tragedies. Although the public may not be aware of it, those who work in the building and safety fields know that the work done by the Committee on Safety to Life of the National Fire Protection Association



(ASA sectional committee A9) is one of the most important contributions to public safety. This committee for years has plugged away at what must many times have seemed to be a thankless task. Its recommendations in the Building Exits Code (page 81), are now widely recognized as the authoritative word on what is needed if people in public buildings are to leave quickly and safely in case of an emergency. This year's edition featured new recommendations for hospitals and similar institutions.

Dynamic Standards and their Interpretations—

In reply to Mr Rehard's suggestions that governmental authorities would make use of American Standards more widely if they were kept up to date, Cyril Ainsworth has analyzed what is now being done by some of the committees under ASA

procedure to keep standards current and to help those who want to use them by interpreting their recommendations (page 83). The experience of these committees may be useful to others who want to increase the value of the standards to those who are using them.

An International Case History—

Mica, we find, is a fascinating subject. The largest proportion of it is produced under the most primitive conditions. It is used, on the other hand, in such recently developed highly scientific industries as electronics. The United States has a high stake in the standards which control the quality of the mica it receives from other countries. Recently, international meetings were held in India to study the subject. The analysis of the problem and the various viewpoints of the countries participating constitute an interesting case history of an international project (page 84).

Our Front Cover

Whether or not mica will someday be synthesized successfully enough for mass production, an immediate problem of natural mica standardization persists. Twenty-two countries in the International Organization for Standardization are interested in mica standardization work, and an ISO technical committee is now working on international specifications for thickness, etc. In India, principal mica producing country, trimming and splitting of the raw product is done manually by skilled women workers. *Cover photo from the Press Information Bureau, Government of India.*

Opinions expressed by authors in STANDARDIZATION *are not necessarily those of the American Standards Association.*

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Standardization is dynamic, not static. It means not to stand still, but to move forward together.

In This Issue

Featured—

News—

ASA Standards Activities—

ASA

Reg. U. S. Pat. Off.

Ruth E. Mason, Editor Dollie Carpenter, Production Editor

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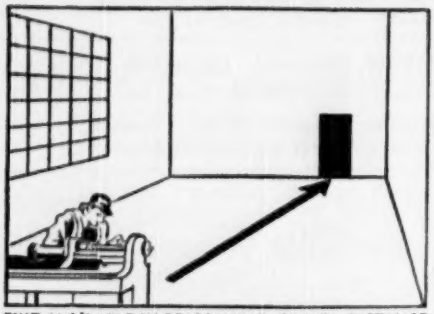
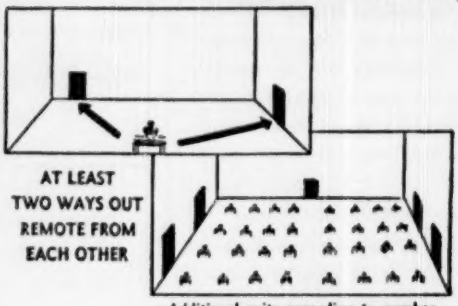
Fighting *Death by Fi*



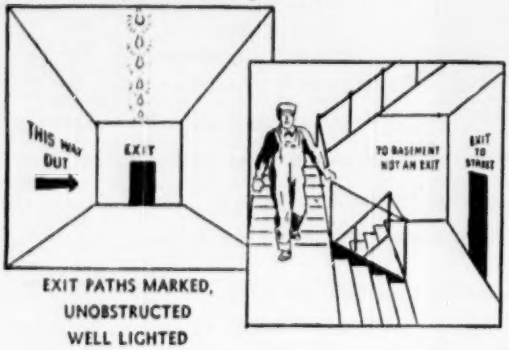
EXIT AVAILABLE IN REASONABLE TRAVEL DISTANCE

High fire hazard	75 feet
Average hazard	100 feet
Sprinklered building	150 feet

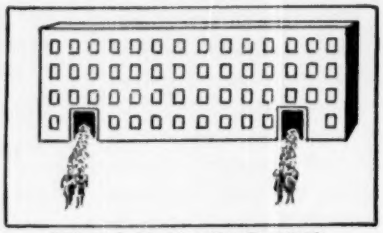


AT LEAST TWO WAYS OUT REMOTE FROM EACH OTHER

Additional exits according to number of persons and relative fire danger



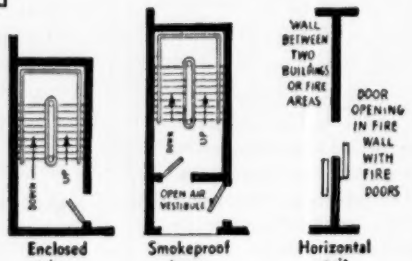
EXIT PATHS MARKED, UNOBSTRUCTED WELL LIGHTED



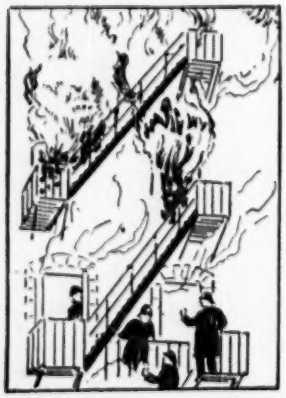
FIRE EXIT DRILLS WELL PLANNED FREQUENTLY PRACTICED

PLAN VIEWS OF FAVORED TYPES OF EMERGENCY EXITS

Stair enclosure, usually of masonry, prevents fire on any floor trapping persons above. Smokeproof tower is better as opening to air at each floor largely prevents chance of smoke in stairway. Horizontal exit provides a quick refuge, lessens need of hasty flight down stairs. All doors shown are fire retardant doors.



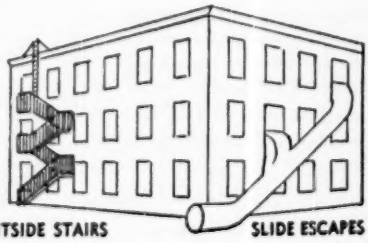
Enclosed stairway | Smokeproof tower stairway | Horizontal exit



Fire may make fire escapes useless as this picture, drawn from photograph of actual fire, shows.

FIRE ESCAPES ARE MAKESHIFTS, OFTEN DANGEROUS

There's little safety where occupants have to clamber over window-sills to flimsy, steep, and weather-swept outside fire escapes. Substantial outside stairs and approved slide escapes may be used to provide exits lacking on existing buildings.



OUTSIDE STAIRS | SLIDE ESCAPES

PRINCIPLES OF EXIT SAFETY

From the BUILDING EXITS CODE published by the National Fire Protection Association

ith the BUILDING EXITS CODE

by Robert S. Moulton

Technical Secretary, National Fire Protection Association

FIRE takes the lives of some 11,000 Americans every year. This loss is appalling in itself, but almost equally distressing is the fact that at least one-third of the lives lost could have been saved if adequate exit facilities had been available, according to estimates of the National Fire Protection Association.

Many organizations and individuals are working to provide methods and procedures which will help to cut down or even ultimately eliminate this preventable one-third of the deaths due to fires. One of the most effective means available at the present time is the Building Exits Code—the work of a large group of nationally recognized experts in problems of fire prevention, building and construction, operation of buildings, and public safety. Widely known as the authority in its field, the Code has gone through successive editions since 1913. The tenth edition, just completed through the work of the National Fire Protection Association and approved by the American Standards Association, brings this highly practical guide to safe practice up to date.

Newspaper stories of disastrous hotel, hospital, or theatre fires tell again and again of hallways cut off from exists by smoke and flames, of inadequate fire escapes, and exit doors that have been blocked or are inadequate to handle the struggling crowds attempting to escape. The Building Exits Code offers the solution to these problems as nearly as a solution can be reached practically and adequately under present conditions. It offers a guide for the design of exit facilities to assure the orderly and safe evacuation of buildings in case of fire or other emergency.

The NFPA Committee on Safety to Life (organized as a sectional committee under the procedure of the American Standards Association) has been responsible for the development of this standard. Members of the committee early recognized that exits alone do not necessarily assure life safety from fire. They also recognized certain principles that if put into practice would go a long way toward protecting lives in case of fire:

- Exits must be protected against fire and smoke
- They must be readily accessible
- Occupants must know that there is a fire in the building so that they may leave promptly
- There must be some orderly plan for evacuation
- The building and its contents must be limited in combustibility by construction, arrangement, and protection so that after the start of a fire there will be a sufficient time interval for occupants to escape

The Committee has kept these principles in mind, and has included various related features considered essential to life safety and the effective use of exits in addition to specific requirements for the exits themselves. An entire section of the Code deals with alarm systems, for example, and another with fire exit drills. The maximum distance that should be allowed to reach the nearest exit is defined for various types of occupancies, classified according to the degree of hazard. In order that the person using the Code can determine where in the hazard scale his building should be classified, instructions are included telling exactly how this can be figured. It became clear to the committee at an early date that the same exit requirements could not be specified for all buildings and that different provisions are needed to deal properly with different conditions found in the various classes of occupancy. An office building, for example, does not offer the same degree of fire hazard as a mattress factory or an explosives plant. In computing the size and number of exits satisfactory for the various classes of buildings, the measurements are stated not in feet or inches but in terms of units representing the

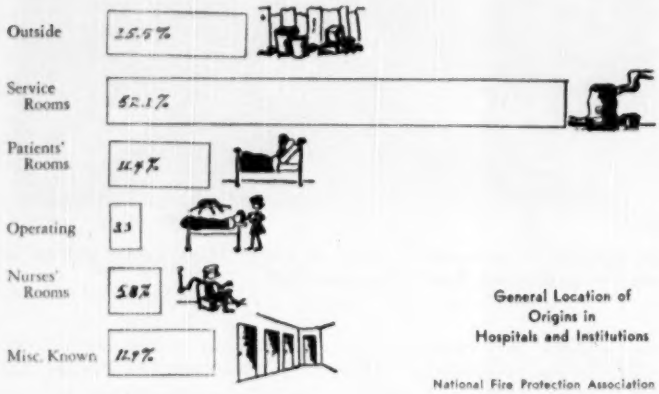
National Fire Protection Association

Swinging fire doors saved the balance of a Lynn, Massachusetts, high school when the auditorium burned in September 1949.

width required for one person.

The increasing use of the Building Exits Code both as an advisory guide and for purposes of legal regulation in the interest of life safety from fire focused attention before adoption of this new edition upon the need for additional provisions, clarification of details, and changes to meet new developments. Each of the major fires involving loss of life, though all occurred in buildings that fell far short of the then-existing provisions of the Code, has indicated the need for further committee attention to one or more details. As a result, the committee has met annually for many years, and each year has

rapid upward spread of fire and smoke, and protection of such openings is considered essential to life safety. Where enclosure walls and fire doors are considered impracticable, there are several alternative methods of protection now recognized which are specified in some detail in the new Code. For example, automatic self-closing shutters will now be permitted to enclose the top of a moving stairway as an additional alternate to the "sprinkler-vent" system and "spray nozzle" system formerly permitted. There is one limitation on the use of the shutters, however. Since people seeking to escape from the basement to the main floor



General Location of Origins in Hospitals and Institutions

National Fire Protection Association

recommended amendments which in due course have been adopted by the NFPA and approved by ASA after wide publicity and general discussion. These changes have been incorporated in successive editions of the Building Exits Code.

The general character of the tenth edition of the Building Exits Code is indicated in its Table of Contents (see box on this page). It differs from the ninth edition in a number of details.

Moving stairways ("escalators") in department stores and other buildings are the subject of one of the important amendments. Although they do not come under the provisions of the Code as a part of the required exit system of the building, they form a special fire hazard because the floor openings for moving stairways may serve as flues for the

might be trapped at the top of the moving stairway if the shutters were installed there, they will not be used at the top of a moving stairway up from the basement floor to the street floor. Shutters at the top of stairways moving from upper to lower floors would prevent a person from entering the stairway, however, and would serve as a warning to find some other means of escaping.

The most important change in the new edition consists in a complete revision of the treatment of hospitals, made with the cooperation of the American Hospital Association, which actively participates in the NFPA committee work. In recognition of the difficulty of moving bedridden hospital patients out of ordinary exits, special provisions are specified to give room for carrying patients on stretchers, but the main emphasis

WHAT THE BUILDING EXITS CODE COVERS

Introduction and Definitions

Part A

Part B

is placed on horizontal exits[1] to permit moving bed patients to an area of safety on the same floor level without the necessity of going down stairs.

The committee recognized that exits or the character of construction alone are not sufficient to provide proper safety for occupants physically or mentally disabled or under restraint. For this reason, the section on hospitals and sanitariums places greater emphasis on fire prevention and fire protection than any of the other sections. The recent fire in the Midwest in which many mental patients lost their lives gives the following section special poignancy:

"It is recognized that in institutions or parts of buildings housing various types of psychiatric patients, it is necessary to maintain locked doors and barred windows. It is also recognized that certain types of psychiatric patients are not capable

[1] Horizontal exits are defined in the Code as consisting of "one or more protected openings through or around a fire wall or a fire partition or of one or more bridges connecting two buildings."

(*Continued on page* 106)

Dynamic Standards, the Challenge—*Interpretation*, the Answer

by Cyril Ainsworth
Technical Director, American Standards Association

IN his article on "Dynamic National Standards" in the April issue of STANDARDIZATION, J. C. Rehard, chief safety engineer of the City of Detroit, clearly and forcefully discusses one of the most important problems connected with the use of national standards by governmental agencies throughout the country. While the ideas expressed by Mr Rehard are not entirely new, all too little attention has been paid to them during the recent years in which extensive development of national standards and promotion of the knowledge and use of such standards have been taking place. All concerned with the development and use of national standards by governmental agencies cannot help but express appreciation to Mr Rehard for again calling attention to the need for giving continued life to national standards. His proposal calls for the use of appropriate machinery to provide uniform interpretation of the requirements of standards and to develop proposed revisions of standards when such interpretations indicate they are necessary.

Unpredictable Conditions

As Mr Rehard indicates, the development of a standard, coupled with a request to governmental agencies that the standard be adopted as the basis of regulations, is not sufficient to provide adequate service to the governmental agency, the industries and businesses concerned, and the general public. Committees which develop standards do their best to insure that the language is clear and understandable. They cannot, however, anticipate the variety of conditions which exist throughout the country and establish provisions to meet them. Therefore, the general provisions of the standards are applied against special conditions, and questions of interpretation arise. Governmental administrators are constantly faced with such problems. Most of them believe in the desirability of uniform regulations. They realize, however, that any interpretation of a standard requirement which one of them might make is likely to be different from an interpretation made by a neighboring administrator.

Therefore, Mr Rehard pleads, a suitable agency established in connection with the organization that developed the standard, which can answer questions directed to it in a uniformly consistent manner based on its knowledge of the reasons for the development of the requirements of the standard, can become a valuable tool for uniform administration and application of standard requirements. Nonuniformity of administration and interpretation soon kills the value of a standard. This suggests that groups charged with responsibility for the development of national standards, particularly those standards which are likely to become the basis of regulations issued by governmental agencies, should give consideration to the creation of machinery for interpretation. It also suggests that such a service seems essential to make the value of national standards fully effective.

Some important work in this direction has been accomplished in the past, and is being carried out effectively at the present time. The interim revision procedure of the committee handling the National Electrical Code, approved as American Standard and developed under the sponsorship and leadership of the National Fire Protection Association, is an excellent example. Many requests for interpretation of the requirements of this code are received and sent to the various article committees for review. Many times the answer, given in the form of an interpretation of the code requirements affected, indicates that a simple clarification of language in a future edition of the code will make future similar requests unnecessary. In other cases, the question indicates the necessity for a more extensive revision of the particular requirement, because undoubtedly the committee in developing the requirement had no knowledge of, or could not anticipate, the conditions surrounding the question.

ASA'S Committee of Judges

Similarly, the American Standard for recording and compiling accident statistics, the most fundamental standard in accident prevention work, generates many questions as to whether or not the circumstances surrounding an accident dictate that it should be recorded in the statistical analysis of accidents in a plant or industry. The sectional committee in charge of the development of these standards, recognizing this situation, created a Committee of Judges to which all such questions are referred. (See interpretations on page 94.) As in the case of the National Electrical Code, the answers to some of the questions are simple and do not indicate the need for extensive changes in code requirements. In other cases, the decisions indicate a definite need for extensive revisions. The activities of the Committee of Judges are slowly but surely bringing about uniformity in the administration and use of the provisions of this basic safety standard.

The committee in charge of the Safety Code for Mechanical Refrigeration, anticipating that the revision which it has been developing during the past three years will soon be completed and approved, has also created a Committee on Inter-

(*Continued on page* 106)

MICA

by Dr Lal C. Verman

Director of the Indian Standards Institution; Chairman, ISO Technical Committee 56

IN the course of the last war, the production and world consumption of mica increased considerably. Since 1945 demand has diminished somewhat; but this is not necessarily a sign of a profound crisis in the mica industry.

The production of mica in the principal producing countries during the period 1938-45 is given in Table 1 (tables on p. 86). According to the tonnage produced, the United States has returned to the first place, but the largest part of U. S. production is for certain specific uses, as, for example, mica in powder for pigments. The second place is occupied by India. Here production represents principally the superior forms of mica; blocks, films, and splittings of different qualities and classes, that are used largely in certain industries, for the most part in connection with the manufacture of electrical equipment.

Table 2 gives the total production in India of mica in blocks and splittings for the period 1938-45. These figures show that the principal part of the production of India, going into international commerce, is represented by the higher qualities of mica. This constitutes only about 5 percent of the total world production. The rest, about 95 percent, is, in large part, put on the market under the form of ground mica of which a considerable part is lost although the product can be re-used.

As opposed to the home production with a value of three million dollars, the U. S. imports from abroad more than six million dollars worth of high quality mica. Table 4 gives some information on the importation in 1945 by the U. S. of high quality mica coming from the prin-

(*Continued on page* 87)

Dr Verman's article on international mica standardization, originally published in the June 1949 issue of Courrier de la Normalisation (official magazine of AFNOR, the French standardizing body) is reprinted now because it is especially timely. The international mica committee, ISO/TC 56, met in New Delhi, India, in January, and representatives from nine countries, including the United States, United Kingdom, and India, reached substantial agreement on some phases of international mica standardization. Representing the United States, and presenting the various American comments, were Mr U. C. Lal and Mr Peter de Cicco of the Ashville-Schoonmaker Mica Company of Giridih, India, and the U. S. Remaining differences are now in the hands of an international subcommittee for further study. The official report of the January meeting was not available when STANDARDIZATION *went to press.*

Following Dr Verman's article, which gives a good picture of the scope and procedure of an international technical committee, are brief resumés of two proposed international mica standards drawn up by India, and comments on them originating from the U. S. and France.

The strategic importance of international standardization of mica is indicated in the fact that seven countries are actively participating in the work of ISO/TC 56, and 15 other countries are registered as "interested in being informed on progress of the work"—a total of 22 out of 29 member-countries comprising the International Organization for Standardization.

Indian mica production is a "cottage industry" in that most of the processing is done by skilled women workers at the entrances of the mica mines or in their homes. A majority of the steps in the processing of Indian Muscovite mica necessitate manual labor. Blocks of mica are dug from hillsides by young workers. Sensitive-fingered Hindu women then trim and split the mica laminations to desired thicknesses with surprising accuracy. Large scissors are used to trim away defects, and the layers of mica are separated with a simple homemade knife. The standardization of Indian Muscovite mica is of strategic importance to both the producing and using countries. Photos from the Press Information Bureau, Government of India.

TABLE 1

Production of mica 1938-45 in the principal producing countries

(Data from the Minerals Yearbook, 1945, U. S. Bureau of Mines)
(In metric tons)

Countries	1938	1939	1940	1941	1942	1943	1944	1945
Argentina	250	298	442	540	625	402	187	59
Brazil	521	435	1,117	867	866	796	941	985
India	8,896	10,104	8,654	10,584(×)	10,252	9,382(+)	7,081(+)	6,518
Madagascar	677	590	531	479	320	343	493	248
Norway	197	101	33	68	1,391	957	593	174
South Africa	1,116	972	1,252	1,076	1,265	1,274	1,127	849
United States (××)	18,803	22,751	21,046	30,693	40,499	43,419	47,617	30,417

(×) Data from the Geological Survey of India.
(+) Data from the Minister of Commerce of the Indian Government.
(××) The numbers for the United States do not include mica obtained from clay and from schists of mica.

TABLE 2

Production of mica in blocks and splittings, India 1938-45

(Data from the Indian Geological Survey)
(In metric tons)

	1938	1939	1940	1941	1942	1943	1944	1945
Blocks	960	1,519	962	1,175	1,563	2,349	1,296	720
Splittings	4,807	5,547	5,661	9,164	7,588	4,854	2,387	3,318
All forms	8,896	10,104	8,654	10,584	10,252	9,382	7,081	6,518

The production of the United States offers an inverted picture, showing the figures of 1945 for different forms of mica products, data in Table III.

TABLE 3

American mica production, used or sold by U. S. producers in 1945

(Data from the Minerals Yearbook, 1945, U. S. Bureau of Mines)

Designation	Metric Tons	Value in $1,000
Mica in sheets and in cut film	590	737
Mica scrap(*)	29,800	510
Ground mica(*)	43,700	1,991
TOTAL	74,090	3,238

(*) These numbers contain mica obtained from clay and schists of mica.

TABLE 4

High quality mica imported in 1945 by the U. S., originating in the principal producing countries.

(Data from the Minerals Yearbook, 1945, U. S. Bureau of Mines)

	Mica non-manufactured (above 11 cents per kg)		Mica manufactured		Total	
	Metric tons	Value (in $1,000)	Metric tons	Value (in $1,000)	Metric tons	Value (in $1,000)
Argentina	256	483	—	—	256	483
Bolivia	1	4	—	—	1	4
Brazil	691	1,392	—	—	691	1,392
Canada	229	153	3	4	232	157
British Africa	2	27	—	—	2	27
Guatemala	1	1	—	—	1	1
Port. Guiana	9	58	—	—	9	58
India	507	1,862	3,055	1,918	3,562	3,780
Madagascar	3	8	82	67	85	75
Mexico	—	—	34	159	34	159
Mozambique	3	45	—	—	3	45
Peru	17	27	—	—	17	27
TOTAL	1,719	4,060	3,174	2,148	4,893	6,208
Percent from India	29	46	96	89	73	61

(*Continued from page 84*)

cipal world producers of mica.

The last line of Table 4 shows that India is able to supply the major part of the needs of the U. S. up to 96 percent in the case of films and splittings. Brazil is the second largest supplier and the other countries furnish only very small quantities.

Unfortunately, it is not possible to get figures concerning the importation and consumption for the other important user-countries, such as Great Britain, but an examination of the figures contained in the four tables shows that the U. S. is indisputably the largest consumer, not only of high quality mica, but probably also of other forms, and that India is the principal source of supply for the first of these categories.

Among the factors that determine the predominant role played by India in this domain, we cite the following:

1. The variety of mica most used in electrical manufacturing industries is muscovite mica which is found only in India in large quantities.

2. The muscovite mica of India is found generally in very large blocks called books, from which are obtained films and splittings.

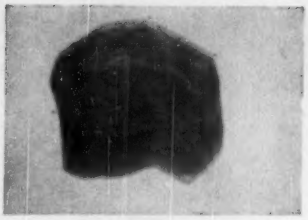
3. Many years of experience have resulted in a supply of skilled workers responsible for the cutting of mica in films and splittings, and facilities exist in the mica-producing regions for extending this labor force.

4. The mica-producing industry has developed and adopted standards uniform enough for grading and classification of mica, which facilitates international commerce. These standards are more or less universally accepted by other countries.

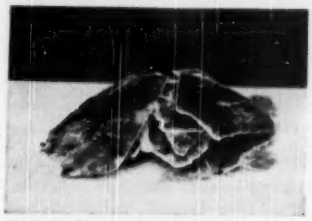
In the absence of a national standardizing body, India had not been able to unify the different standards of commerce and of the industry, nor to obtain an international accord on such standards. The Indian Standards Institution (ISI), which was founded in 1947, undertook this work, and in the position of secretariat of the technical committee ISO/TC 56-Mica, India is now working to bring into accord all the national and international groups interested in the question.

Technical committee ISO/TC 56 is made up of the following members:

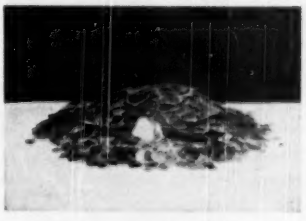
1. Countries actively participating:



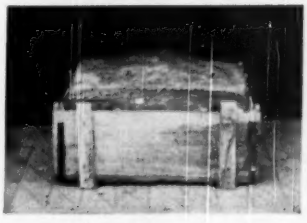
Bookform Splitting



Raw Mica Laminae



Block Mica



Bulk Mica

Brazil, France, Czechoslovakia, and India.

[Editor's note: Since this article was written Hungary, Great Britain, and the U. S. have become active participants.]

2. Countries interested in being informed on progress of the work: Italy, South Africa, Mexico, Sweden, the Low Countries, Switzerland, and the USSR.

[Editor's note: Also added to this list are: Australia, Austria, Belgium, Chile, Italy, New Zealand, Poland, and Portugal.]

The program of work that the secretariat has recommended to the members is as follows:

Program of Work of Committee ISO 56—MICA

1. Title—Mica.
2. Further attempt to specify and clarify title.

This title has been accepted by the ISO Council and is designed to cover all the types of products partly fabricated of mica, used in industries as a principal material.

3. The international scope of the work.

Mica products constitute an important article of international commerce and certain types are considered materials of strategic importance. Producing countries are India, the U. S., the Union of South Africa, Brazil, Argentina, Madagascar, Canada, the USSR, etc. India produces the largest majority of the high quality mica employed in electrical manufacturing, of first-class strategic importance, and it exports a large part of the production to the U. S. and to Great Britain, which are the largest users.

Standardization in this realm has been largely unilateral; the standards have been established chiefly by U. S. organizations, in the hope that the producing countries would conform to the needs of the using countries. However, in this matter India has not made a serious enough attempt to bring these needs to the attention of the producers.

Since the Indian Standards Institution has been constituted and standards groups have begun to work actively in such countries as Brazil, South Africa, and others, and, additionally, a certain number of producing countries and using countries became part of the ISO, it seems that the moment has come to undertake this work.

4. Problems to be worked on.

(*a*) Terminology and definitions of different types, such as blocks, sheets, splits, splittings, films, etc.

(*b*) Standardization of gradation

and dimensions, comprising methods of cutting and a system of designation for different qualities.

(*c*) System of classification of quality by a visual method, comprising nomenclature of flaws.

(*d*) Standards for reference, to include weights for mica and colored photographs of mica specimens.

(*e*) System of objective classification, for particular application, based, for example, on the methods of electrical and optical tests for mica destined for the electrical industry.

5. List of national standards that will be suitable for coordination.

(*a*) GSI—11, IXXVII-11-1943—Standard sizes and qualities of Indian Muscovite Mica including Notes on Establishing such a Standard.

(*b*) ASTM—D 351-46 — Natural Mica Testing, Grading, and Classifying.

(*c*) ASTM—D 352-39—Test for Pasted Mica for Electrical Insulation.

(*d*) ASTM—D. 748-47.T—Natural Blocks and Films for Fixed Mica Dielectric Capacitors.

(*e*) NEMA—Publ. 46/117—May 1946.

(*f*) BSI—BS-626:1946—Micanite for Commutator Separators.

NOTE: As mentioned above, the majority of the known standards in this field were originated in America. The national standardization committees have taken the suggestion of contributing additions designed to complete the list and of sending to the secretariat of Committee ISO 56, ten examples of each of the standards proposed for examination (1).

(1) NOTE: France does not possess a national standard on mica, but it invites attention to the publication No. 53-1946 of the Union Technique of Electricity: Specifications for mica products used in the manufacture of electrical equipment.

(GSI—Geological Survey of India, Calcutta, India.)

(ASTM—American Society for Testing Materials, Philadelphia, Pa.)

Photo by F. S. Lincoln, Sylvania Electric Products

Mica parts are precision stamped for electronic and electrical industries.

(NEMA—National Electrical Manufacturers Association, New York, N. Y.)

(BSI—British Standards Institution, London, UK.)

American industry has received favorably the proposition tendered for the international coordination of mica standards and has asked the Indian Standards Institution (ISI) to inform the mica producers of India what American users need. The secretariat hopes to formulate some concrete proposals for submittal to examination of technical committee ISO/TC 56.

Current Status of International Mica Standardization

The proposals drawn up by the secretariat and submitted to the international committee at the New Delhi, India, meeting in January, were Indian Standards 13 and 14-1949. These were titled respectively, Tentative Indian Standard Methods for Grading Processed Mica and Tentative Indian Standard Classification of Processed Muscovite Mica. A brief analysis of each of these proposed international standards follows, and, in conclusion, the American and French premeeting comments on the proposals. Actual agreement reached on these international mica standards will be reported in a later issue of STANDARDIZATION when official minutes of the meeting are available.

IS:13-1949 Tentative Indian Standard Methods for Grading Processed Mica.

The foreword states that classification and grading have been separated into two standards because grading methods are largely objective in nature and applicable to all varieties of mica, but those pertaining to classification are largely subjective and differ for the different varieties.

It also notes that the standard sets up a new set of grade designations for blocks, thins, and condenser films based on metric units. The grading system for book-form and loose-pack splittings is based on the existing trade practices in India, and is entirely distinct from the existing NEMA grades. To differentiate between the old and new grade designations, the word "size" is recommended for use in connection with the new grades, while retaining the word "grade" or "number" to designate the old grades.

Grading terminology is defined: i.e. RIFTING — the process of splitting cobbed mica into sheets of suitable thickness; PROCESSED MICA —commercial forms of mica known as blocks, thins, condenser film, splittings, and scrap.

The grading chart is in centimeters, and grading is based on maximum usable rectangle that may be cut from specimen. All specimens are fully trimmed before grading, and minimum dimension is given for

Photo by Nick Lazarnick—Western Electric Co, Inc

Mica insulates and holds together parts of a miniature electron tube.

one side. Total area of the piece shall not be more than 2½ times its usable area by which it is graded. For blocks, thins, and condenser films, the proposed standard allows a tolerance of 5 percent by weight of the next lower grade.

Splittings must fall within specified ranges of thicknesses without including, as far as possible, thick edges or corners. Only two "V" cuts on a piece are allowed by the standard, and pieces having more than two "V" cuts shall not constitute more than 15 percent by weight of any one consignment. ("V" cuts are areas of the piece of mica where cracks and defects have been trimmed away in the shape of a V.) Allowance is made for tolerance on defects of 7½ percent on book-form splittings, and 10 percent on loose-pack splittings.

IS:14-1949 Tentative Indian Standard Classification of Processed Muscovite Mica.

(Differences of opinion are anticipated in the foreword to this proposed standard.)

"Since the quality classification of mica has, unfortunately, to depend mainly on visual tests, such classification has, since the very inception of the mica industry . . . been largely a matter of opinion. Moreover, products of different mines vary in physical characteristics to such an extent that the development of a single standard, with reasonable limits of tolerance, becomes an almost impossible task. Added to these difficulties is the fact that quality classification, which involves consideration of numerous factors, has to be carried out by a large number of individual workers. There are also a number of natural and circumstantial factors . . . effects of different lighting conditions at the time and place of inspection, urgency of the requirements of the customers, mood of the inspector at the time of inspection, etc, which play a very important part in the ultimate decision as to quality. . . .

"Under these circumstances, the standard for quality classification can give at best only an approximate idea of a particular quality and its relative position with respect to other qualities; and for commercial purposes, it cannot always be strictly adhered to. Hence it cannot be regarded as the absolute standard in the strictest sense of the term."

Terminology is defined in the proposed standard; i.e. STAINS — stains arise from foreign matter resulting in a partial or total loss of transparency and may be in the form of specks or spots, or patches of appreciable area, e.g. Slight Stain, "Vegetable" Stain, Clay Stain, Black Stain, Red Stain, Air Stain . . . Green Stain, Black Speckled, Light Dot or Spot, Black, Red, or Green Dot, etc.

A chart showing four groups (by quality) and the visual quality classifications is given for blocks and thins. Required characteristics are listed, and defects that are allowed or not allowed in the various qualities of mica.

In all classes of visual quality classifications for blocks, thins, and condenser films, a tolerance of 10 percent by weight of pieces having characteristics of the next lower class of the same group, is permitted. In the case of the second quality condenser film and all other mica-splittings, a tolerance of 5 percent of off-standard pieces by weight is allowed.

The proposed standard states that the mica shall be packed in wooden boxes, and secured to prevent movement. The inside of the cases is to be lined with paper, and book-form splittings are to be packed in five and two pound packages before packing in wooden boxes.

Comments from Member-Countries

Premeeting comments from other member-countries of the mica committee were interesting, varied, and indicative of the concessions that will have to be made before international mica standards can be adopted.

France proposed the use of a series of preferred numbers (extract of series R20) instead of that proposed by the secretariat country. The French noted that the use of this other series would lead to a change in the surface of certain rectangles, for which purpose it would be preferable to avoid very long rectangles. (A change in the series of numbers used for grading the sizes, would change the basic shape of each group.)

The French believe that no "V" cuts should be allowed in splittings, and suggest that the same scale of grades be used for the different forms

(*Continued on page* 93)

A relatively large piece of synthetic mica, made in Germany toward the end of World War II is shown above. Interest in producing a synthetic mica for commercial purposes dates back to World War I when Germany had pros-

Synthetic Mica

pects for a lack of supply of a suitable natural product. The studies at that time had led to the preparation on a laboratory scale of a fluorine phlogopite mica in which fluorine replaces the OH groups of the muscovite and magnesium completely replaces the AL_4 groups. In 1935 intensive study was resumed by several institutions in Germany on the synthesis of mica. Fundamental studies yielded some very interesting information on the possible compositions and a large scale pilot plant operation had developed to the point where a small quantity of a sheet of the fluorine phlogopite mica about seven by ten inches in size had been crystallized. Though yields were small, definite progress was being made with each subsequent melt up to the time that the work had to be stopped because of bombing raids. Further study needs to be made to determine in detail whether this material will have superior characteristics necessary to justify its relatively high cost.

AISI—*Progressive Spearhead of the Iron and*

WHEN trade and technical papers recently announced the opening of new iron ore deposits in Venezuela and Labrador, it was evident that an impending crisis had been averted in the iron and steel industry. These rich deposits open new natural frontiers for the industry, guaranteeing a supply of ore for many years to come.

This is not the only development that has broadened the horizon of the iron and steel industry in the last few years, however. Research and technical work carried on by the industry itself have served to increase the usefulness and efficiency of its product and processes.

Spearhead of the industry's study to promote economic and technical development in such fields as raw materials, industrial relations, operation, technology, and use of iron and steel products is the American Iron and Steel Institute. Its technical committees are responsible for such a diversity of projects as fundamental research in the physical chemistry of steelmaking, and the development of vegetable oil compounds of American origin as a substitute for East Indies palm oil for use in hot dip tinning.

Provide Statistical Data

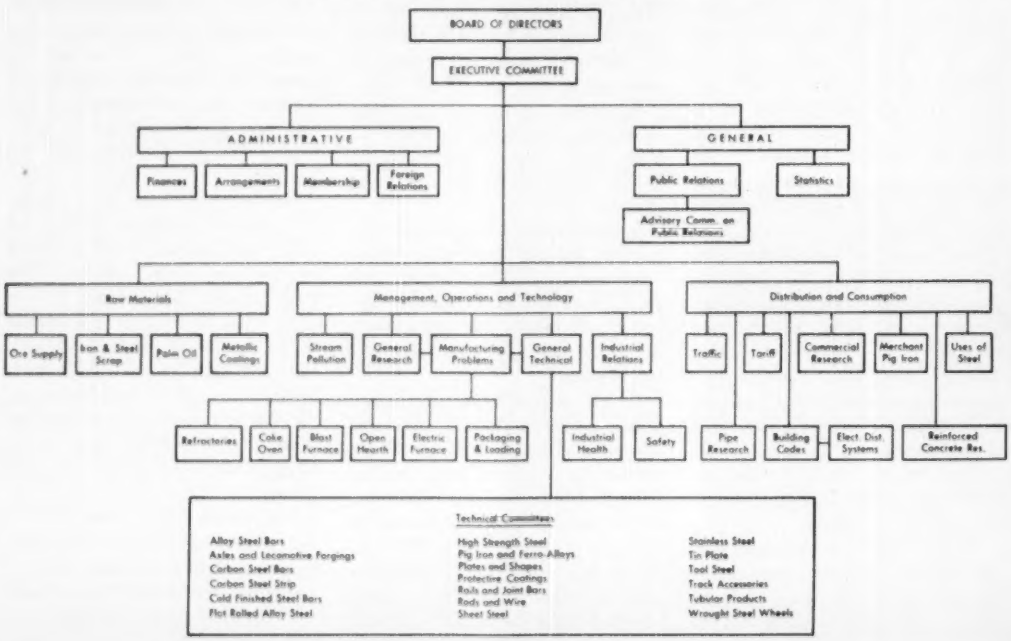
Perhaps best known of the services the Institute offers its industry members are its statistical reports. As early as 1868, both producers and users of iron ore and iron and steel products found they needed more data about what was happening in the industry. The active development of new processes, the problems of mining and distributing ore from different sections of the country, the rapidly expanding demand for steel and iron in the new age of machinery called for a more intelligent understanding of the forces at work. In answer to this need, a group of iron and steel producers undertook to issue statistical reports and information bulletins.* These bulletins, now on file at the Institute's headquarters, "were the trade papers of their day, containing editorials, personals, market reports, articles favoring or opposing legislation, especially with respect to tariff matters, and other subjects, many of which our legal advisors would not permit us to publish or comment on today," George S. Rose, secretary of the Institute, declared recently.

This early material serves as an

* This group of "iron masters" was organized in 1855 to form the American Iron Association, and after the Civil War reorganized into the American Iron and Steel Association. In 1908, a new organization—the present American Iron and Steel Institute—was formed to supplement the activities of the American Iron and Steel Association. In 1912, the two organizations merged and the Institute took over the records and activities of the Association. The Institute now has 2300 individual members and 95 company members. Its president since 1940 is Walter S. Tower; secretary is George S. Rose.

AMERICAN IRON AND STEEL INSTITUTE

ORGANIZATION OF COMMITTEES UNDER THE BOARD OF DIRECTORS



interesting historical collection for students of the industry. Present-day statistics and committee reports issued by the Institute give weekly information on the operating rate of the industry, and monthly reports on production and shipments of iron and steel that help the companies today to check their production and distribution records by comparison with the over-all experience of the industry.

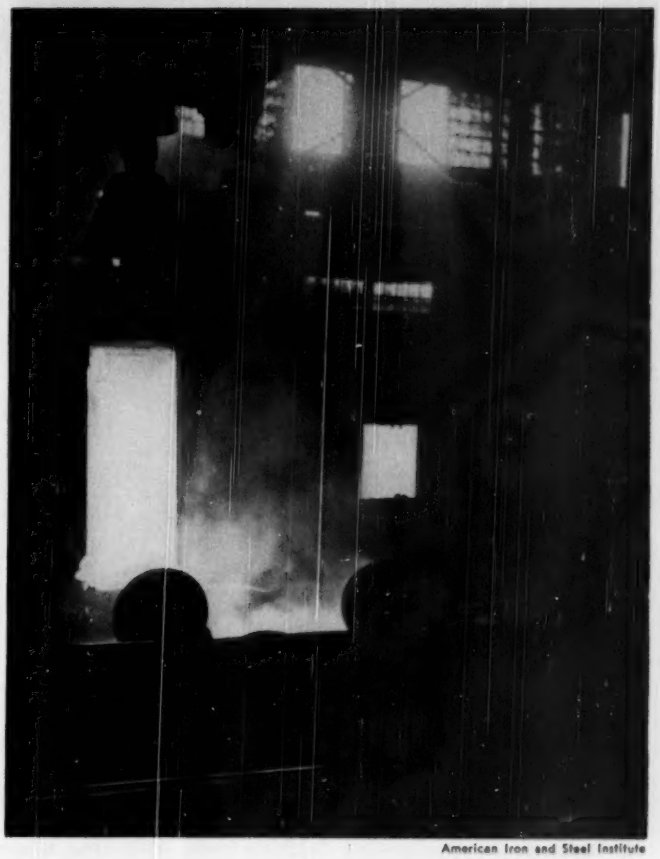
The technical information services given its members by the Institute are as important to the development of the industry's technology as the statistical reports are to its commercial development. The Steel Products Manuals, prepared for the benefit of nontechnical men as well as for the use of technicians, make available a wide range of technical information about individual steel products. They supplement specifications prepared by other specification-writing bodies, describing the products in detail and defining the terms used, describing methods of manufacture and treatment for specific uses. They also outline safe and efficient methods of packaging and loading.

Standard chemical ranges are listed in tables, standard tolerances for workmanship described, and specifications in widespread use reprinted for convenience. These manuals "can well be the basis of a mutual understanding of each product between the producer and consumer," Mr Rose has explained.

Technical Research

The Steel Products Manuals are only one of the technical services provided by the AISI to the iron and steel industry, and are more or less the product of the extensive program of technical committee and research committee work.

Nearly 50 committees, with a total of some 500 members, are doing research and studying technical problems on raw materials, manufacturing, and technical processes on such subjects as alloy steel bars, high strength steel, protective coatings, and wrought steel wheels.



American Iron and Steel Institute

Manufacturing and raw material problems are studied by AISI committees.

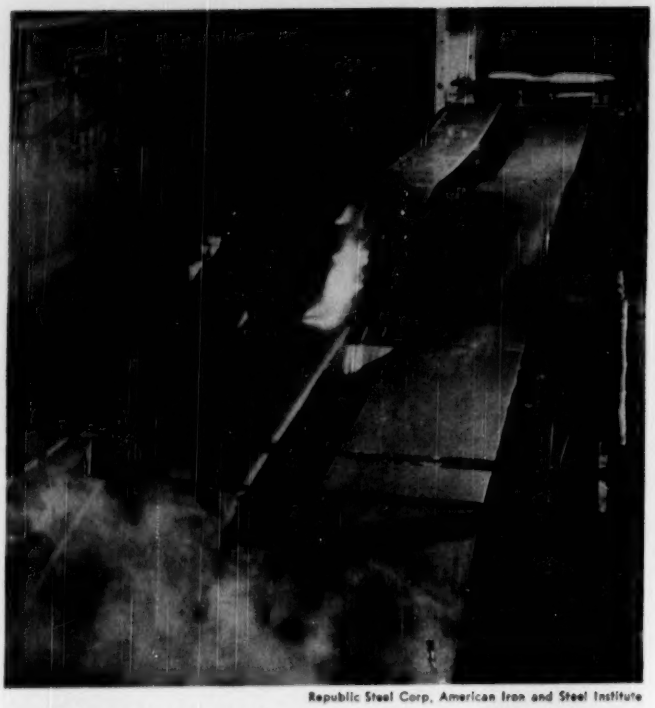
Members of these committees are made available for the work by their companies. A series of regional meetings in various parts of the country give an opportunity for presentation and discussion of new ideas.

The first AISI technical committee started its activity about 15 years ago. It grew out of a committee set up by the Board of Directors of AISI which classified and described steel products, qualities, and grades under the NRA. The work of this committee had an important effect on the technology of steel and steel-making and it was therefore continued as the General Technical Committee after dissolution of the NRA. Its objectives are:

1. To classify and define products of the iron and steel industry, in so far as that is possible
2. To collect and present manufacturing tolerances that might be considered as standards in the industry
3. To collect information relative to standard methods of inspection for each product; and
4. To review existing specifications with a view to classifying them according to standard practices in the industry

Of the work of this committee, Charles M. Parker, Institute metallurgical engineer and secretary of the committee, has this to say: "The men associated with our technical committees are metallurgists and engineers; they are concerned with the production, research, and development problems of the industry; they are far removed from commercial policies and practices."

The chart on page 90 shows how



Republic Steel Corp, American Iron and Steel Institute

Stainless steel strips pass from normalizing furnace to pickling unit.

this technical committee activity has grown during the last 15 years. As indicated, the general Research Committee and the General Technical Committee both have close operating relationships with the Committee on Manufacturing Problems, made up of operating vice-presidents.

One of the technical projects of special concern to the general public is Structural Behavior of Light Gage Steel Members and Constructions. A research project at Cornell University under the sponsorship of the AISI Committee on Building Codes has provided data on design procedure for construction members formed of light gage steel which have helped to bring this type of steel into wider use. Before publication of the Specifications for the Design of Light Gage Steel in 1946 (and supplement in 1949) use of light steel in structural design had been retarded. Now, the AISI design specification has been adopted in more than 1,000 cities as well as in nationally recognized building standards.

A study on protective coatings of iron and steel to determine how to prevent corrosion due to condensation of moisture between the interior and exterior walls of dwelling houses made of steel was made at Battelle Memorial Institute recently. Some 34 kinds of paint systems were studied to determine their comparative effectiveness.

Study Railway Materials

Many of the research projects in which the AISI has an interest are being carried on in cooperation with other organizations. The work on railway materials is typical of this activity. Technical committees of the steel industry, the American Railway Engineering Association, and the Association of American Railroads have been working together to provide the types and quantities of steel needed for rails and other equipment in view of the high speeds and heavier wheel loads of modern streamlined trains. Joint research projects have resulted in recognition of controlled cooling procedures as a means of correcting transverse fissures in rails. Special testing machines and test procedures have been developed to check on service difficulties and possible failure of wheels. "If it were not for the improvements in wheels which have resulted from research of this sort, the safe and rapid transportation of persons and commodities offered by American railroads today could not exist," Mr Parker points out.

Refine Axle Designs

The Institute's Technical Committee on Axles and Locomotives is still working with the Axle Research Committee of the AAR to develop improved methods of heat treatment involving new techniques in treatment and refinement in designs of axles. New designs developed in 1946 recognized the recent increase in tensile strength of steel.

New developments in heating and cooling techniques are being recognized by the Committee on Steel Pipe Research which is contributing to research on panel radiant heating and cooling being done by the American Society of Heating and Ventilating Engineers. It is expected that the results of the work will contribute toward simplification and standardization in design of these systems.

Other research programs are carried on with the support of AISI's committees. Included among these is the work of the Column Research Council of the Engineering Foundation on strength of structural steel members under compressive loading and on riveted and bolted structural joints which is expected to result in more economical and efficient practices, and greater safety for the public. A formula for ultimate column strength as a basis for working load formulas is expected soon.

The Institute has contributed to the general work of the Welding Research Council. This has already resulted in more efficient and more rational methods of design of building connections than heretofore. Investi-

(*Continued on page* 107)

Canada's Labeling Legislation

Presented by E. F. K. Nelson, Canadian Retail Federation, at the February 15 meeting of the Sectional Committee on Rayon Fabrics (see page 104).

SOME three years ago the Dominion Government made use of an existing law, the Dominion Trade and Industry Commission Act, to set up a Standards Division within the Federal Department of Trade and Commerce.

The first task of the new Division and of its Director was to gather together a number of formerly independent governmental agencies which had been concerned with the administration of such matters as the marking of fine metals, the Weights and Measures Act, etc. These were to be brought within the jurisdiction of the Standards Division.

While this was being done, a great many requests were received by the Standards Division from all sorts of people, including business and consumer interests, for standards and for labeling regulations on a wide range of consumer goods.

A great many drafts of proposed standards and of labeling regulations were submitted to the Federation, among other agencies, for comment and study. These dealt with such subjects as the sizing of children's garments—about the only standard proposed—and with the packaging of flour, the labeling of textiles, turpentine, and some other commodities.

Before any conclusion could be reached on any of these matters, the Government decided that the Dominion Trade and Industry Commission Act was not a suitable legal vehicle for the job to be done and a certain time gap took place, at the end of which a new piece of standards legislation was put in effect by Parliament and the old Act was done away with. The new Act, under which we now operate, provides mainly for two things:

(1) For a National Trade Mark—"Canada Standard." To obtain the use of this mark it is visualized that some suitable standard would be set up for a given commodity. Use of the standard would be entirely voluntary but if, let us say, a manufacturer made use of it then, of course, there would be a penalty involved were he to misuse the trade mark—the use of which involved the standard concerned.

(2) The Act also provides for what it terms the true description of commodities and this, you will understand, is not necessarily the same thing as informative labeling. It does not have to be based upon any particular standard.

Thus far, we have a piece of enabling legislation, and that is all. The practical application of the Act will lie in any regulations that may be issued. Of course, we tend to be particularly concerned about what may be brought forth in the labeling provisions. Technically, these labeling provisions are not mandatory in nature since they say that the government may make regulations regarding the true description of commodities and that, if one "labels," one must adhere to any regulation which may be issued.

What is a "label?"

The catch in all this, from our point of view, is the definition of a "label" which exists in the Fur Regulation and has also been used in the considerable number of draft proposals for a fair range of other commodities. A "label" is defined as including an invoice, a receipt, a ticket, a tag, a show card, an advertisement. All these are considered as "labels" whether or not they are attached to the garment. We take the view that such a definition makes it impossible for a retailer to carry out the ordinary processes of his business without coming under the regulation containing such a definition.

I should make it plain that our Government has shown no inclination to force any standards or labeling regulations upon the trade. They quite obviously intend to go through a most careful and detailed process of consultation with all interested parties. They have, thus far, definitely acted in a restrained manner in their enforcement of the one existing regulation on furs.

In spite of all this genuine consideration for trade and industry, we are concerned over the effect of a series of regulations that will probably deal with a growing list of commodities. Quite inevitably, the Government for its own protection must so design the regulations that they are enforceable in the courts. This is bound to add somewhat to the difficulties and heavy expenses of carrying on one's day-to-day business.

Mica

(*Continued from page* 89)

of mica (blocks, thins, condenser films, book-form, and loose-pack splittings). They also noted that the proposed Indian scale overlaps.

Requirements of thickness of splittings and tolerance of defects allowed in the Indian standards, also brought disagreement from the French.

On the Classification standard, the French requested some tightening of defect allowances in "Fair Stained," and "Ruby Stained" mica. France also recommends that the international committee take up the study of phlogopite (found in Madagascar and Canada) and other varieties of mica.

American Government agency officials, the United States Chamber of Commerce and representatives of the National Electrical Manufacturers Association and the American Society of Testing Materials also drew up premeeting comments on the proposed Indian mica standards.

Extracts of the U. S. Government agencies' comments on the proposed Indian grading standard: National Bureau of Standards; " . . . clause (should be included) in regard to sharpness of the knife used in trimming."

Bureau of Federal Supply does not concur in the proposed change from the present numerical grade designations to the proposed metric system.

Bureau of Mines: " . . . new grade

(*Continued on page* 101)

Rulings on "Borderline" Industrial

HERE are more interesting decisions on borderline industrial accident cases handed down by the Committee of Judges, which operates as a service of ASA Committee Z16. See the March 1950 issue of STANDARDIZATION for a description of the work of Committee Z16, and for the Judges' decisions on cases No. 42 to 55.

Case 56. This case concerned an employee who first reported to the dispensary on January 2, 1948, stating he had bumped his right 5th toe about two weeks previously (in 1947). An ulcer developed later and failed to heal by the usual treatments. A diagnosis of Buerger's disease was made and a sympathectomy was done, along with the amputation of the toe. The company assumed liability for the loss of the toe on the basis of the injuries precipitating, aggravating, or accelerating loss of the toe. The toe was not amputated until April 1948. The question was whether this should be charged as an industrial injury, and if so, should it be included in the 1948 records.

The Committee decided that this was a permanent partial disability and should be charged at 150 days. If it were possible to evaluate this disability before January 31, 1948, then the case should be included in the 1947 records. If, however, it were impractical for the doctor to diagnose any permanent disability at that date, then the case should not be shown in the 1947 records. In no instance should this case be included in the 1948 records. The case should, however, be shown in any revision of the rates for 1947 or in any rates established for a longer period of time, which might include the year 1947. This decision was in accordance with 6.2(d) of the code.

Case 57. A company's tractor and trailer units had been involved in an accident, the cause of which was beyond the control of the company or its driver. The company driver was on Route 1 in Jersey City when he was forced to stop to permit a fire engine to make a U-turn at an intersection. The company vehicle was at a complete stop when it was struck directly in the rear by a light truck. The impact was sufficient to move the tractor-trailer unit several feet. The driver of the light truck admitted he could not stop because his brakes did not operate properly.

As a result of the accident the company driver received a cracked vertebra and lost some time from work during the healing process.

The committee decided that this injury should be included in the rates. Attention was called to the fact that 2.1 of the standard requires the reporting of all injuries arising out of and in the course of employment.

Case 58. A petroleum company asked about the chargeability of an accident which it considered a freak, and which was not compensable in the state in which it occurred—Oklahoma.

One of the company's field employees was struck by lightning while on the tank walk of a tank battery, and was instantly killed. The record disclosed the fact that there had been, at the time of the accident and after, no storm of any kind. Nevertheless, a single flash of lightning and a single clap of thunder occurred, at which time the employee was killed.

It had long been a standing rule of this company, in all departments, that at no time should any employee, during an electrical storm, be on or around any tank batteries. Inasmuch as such Acts of God are not compensable in the state of Oklahoma, the company asked for an opinion from the Committee of Judges.

The committee decided that they believed that this case should be included in the injury rates and the time charge, that for a death, should be shown as 6,000 days.

Case 59. An employee on the night shift was moving some empty drums a distance of 15 feet along a platform between two rows of filled containers. The space between the rows was not wide enough to roll the drums, so the employee tipped them end-over-end for this distance. Each empty drum weighed about 125 pounds. The employee felt no pain while doing this job but later noticed a low-back pain and was unable to stoop. He did not report to the dispensary until the end of his shift at 8.00 A.M. He was unable to work the following night. He received medical attention and lost a total of 4 days from work. The question was whether or not this case should be included in the injury rates.

The committee believed that this was more a case of determining facts than interpretation of the Z16.1 standard. Did the action of this employee in tipping the barrels end-over-end cause or aggravate the low-back pain? From the evidence submitted, the committee decided that this case should be counted in the rates.

Case 60. A new employee was assembling seat cushions on an assembly conveyor. He was standing on a platform 8½ inches high, 36 inches wide, running the length of the conveyor. He complained that his wrist hurt from using a special pair of pliers. While making his complaint he fainted. His knees buckled, he slumped backward, his buttocks landed near the edge of the platform, his body continued back, and the back of his head struck the concrete floor. The employee died about five hours later from a fractured skull incurred when his head struck the floor.

The committee decided that this should be included in the rates as an industrial fatality and called attention to a similar decision which had been reported as Case 7.

Case 61. An employee had a weak knee which had been dislocated on previous occasions. At time of injury, employee was attempting to turn over an engine by means of a bar in the fly wheel. The bar slipped out of the fly wheel, and he came down with all his weight on this leg. The knee buckled, letting him fall to the floor. Injury resulted in about 20 days lost time. The question was whether this case should be counted in the rates and whether similar recurrences of trouble with this knee should also be counted.

The committee decided that this case should be counted. The members also stated that in accordance with 2.3 of the standard each subsequent injury which aggravated this knee should also be counted.

Case 62. The operator of a tank truck, while making delivery of gasoline to a service station, inadvertently placed the hose from the tank truck into an underground tank which was already about three quarters full, thinking it was an empty tank adjacent thereto. After turning on the pump, he entered the service station to handle the paper work in connection with the delivery. Some 300 gallons of gasoline overflowed onto the service station driveway before the mistake was discovered. The employee rushed out of the station and turned off the gasoline flow, and asked for a water hose to wash the gasoline away from the truck as he was afraid of fire. By the time the hose was hooked up, a crowd began to gather and his fear of fire mounted at the thought of someone throwing a lighted match or cigarette into the gasoline. The hose he was using was a small one and he felt the stream of water was not sufficient, so he requested that the fire department be called. When the firemen arrived, they hooked up a hose to the nearest fire plug and started sweeping and washing the gasoline down the gutter to a sewer at the end of the block. The employee took over one of the brooms from a fireman, and while sweeping, he felt faint and collapsed.

The employee was given emergency first-aid treatment by a physician in the vicinity and sent to a hospital in an ambulance. His case was diagnosed by a heart specialist as coronary occlusion.

The physicians attending this case were not in agreement as to the cause of the employee's coronary occlusion. Some of them felt that physical exertion could be precipitating factor in coronary occlusion, while others felt that the role of exertion in coronary accidents was open to question and were not prepared to state that the sweeping and cleaning performed by the employee could be such a factor.

The committee agreed to accept the medical opinions of those who said that the exertion could have caused the occlusion, on the basis that they believed that the man, because of this accident, became excited and exerted himself beyond the normal, and the case should, therefore, be included in the rates.

Case 63. This accident occurred on November 22, 1948 and the injury was diagnosed as first and second degree burns of the left forearm. The burn was redressed on the 23rd and 24th and the burned area showed no indication of infection and was healing well. This man failed to return to the dispensary for any further treatment until January 4, 1949, when examination revealed serious infection. The employee was hospitalized January 5 and was able to return to work January 12. Because of the lapse of time between the actual burns and the time when the infection first came to their attention, the plant personnel felt that the injury should be disqualified on the basis of a secondary outside infection.

The committee decided that this case should be counted in the injury rates, on the basis that the infection was a part of the ultimate injury resulting from the burn.

Case 64. A woman operator was standing on a platform about three inches above the floor level. She was working at a conveyor, packing cartons which weighed approximately 18 pounds. She misjudged her step from this platform and in attempting to keep from falling was thrown off bal-

Accident Cases

Industrial Bulletin

Heavy hangs over their heads! Safe practices are vital to industry.

ance. She immediately complained of a pain in her left side, but continued to work for about thirty minutes after which she reported to the Medical Department. Examination revealed a hernia, left side. A statement from the employee indicated that she had no previous experience regarding a tendency toward hernia.

The committee considered that the facts presented indicated that this case came within the provisions of 2.2 of the standard and the case should be counted.

Case 65. An employee alleged that on Saturday morning he bumped his right leg while at work, resulting in a slight abrasion. He reported that day to the first aid station and received treatment. He reported back to the first aid station a number of times but the abrasion did not heal in a normal fashion. Twelve days after the injury the nurse decided to treat the injury with an infrared heat lamp. From the heat treatment the employee sustained first and second degree burns. There was no lost time prior to the heat treatment, but thereafter the employee lost 17 days.

The company stated that no one witnessed this injury and since their pay day was on Friday they were not sure the original abrasion arose out of and in the course of employment. It also stated the heat lamp treatment was less than a normal treatment and their only explanation of the burns was on the basis of a hypersensitivity of this employee's skin to infrared rays. The company asked (a) whether this case should be considered as reportable if this employee had lost time from the abrasion prior to the heat treatment and (b), in view of 3.6.1 in the standard, should the disability resulting from the heat lamp treatment be considered an industrial injury?

The committee believed that the company was in a better position than the committee was to determine whether the injury took place as alleged by the employee or whether it might have happened outside the plant the night before. From the facts presented, the committee suggested that the employee's statement be accepted and that the case be considered an industrial injury. The committtee also decided that days lost as a result of the heat lamp exposure should be reported. The committee called attention to two previous decisions which had been reported in Case 12 and Case 33.

Case 66. A company asked for an expression from the committee concerning the reportability of six cases quoted from its letter:

"1. In our chemical plant, where the employees are paid annual salaries, they are entitled to twenty-six days of annual leave and fifteen days of sick leave each year. Under the leave regulations, if they leave our employment, they are paid for unused annual leave; they are not, however, reimbursed for any sick leave which has not been used. These same regulations provide that an employee may take sick leave up to three days without a physician's certificate. We get a number of cases in which an employee takes up to three days on sick leave and upon his return, reports an injury on the last day of work. It is usually impossible for the attending physician to determine definitely whether the man had been disabled during the period of his absence. There is located within the plant a medical unit which is staffed twenty-four hours per day and is readily accessible to the gate through which all employees must enter and leave the plant. Subsequent investigation develops no information to support the employee's report of an alleged injury. We have a great deal of difficulty in determining whether such cases should be considered temporary total disabilities. The situation is complicated by the fact that unauthorized annual leave is subject to disciplinary action, whereas no such disciplinary action may be taken for periods of sick leave up to three days without a physician's certificate. In addition, the craft employees who are paid on an annual basis are paid at an hourly rate correspondingly less than the hourly employees who are not entitled to leave and there therefore appears to be an incentive for using up the sick leave to insure full compensation. Can the Committee of Judges suggest any criteria which we might apply in determining the classification of such alleged injuries?"

The committee believed that this was a matter of administrative policy and not an interpretation of the Z16.1 code, and it was not in a position to make any decision on this case.

"2. Employees who are diagnosed as having syphilis and who are otherwise physically fit, are accepted for employment, or continued employment, provided they agree to take treatment recommended by the Division of Health and Safety. Spinal fluid examinations on late, latent and early cases are considered essential to adequate case management, and refusals of employees to comply, are handled in the same manner as refusal to secure other aspects of adequate treatment, in which case the individual may be terminated from employment. In accordance with this procedure, an employee received a spinal puncture and subsequently suffered a lumbar-puncture headache which disabled him for a period of approximately a week. I find no clearly applicable section of the code, and will appreciate an expression from the committee."

The committee decided that this case should not be counted in the rates.

"3. A boilermaker helper was engaged in the operation of an alligator shear, cutting a piece of stainless steel screen in order to fit it into a soap tray for his personal use. This occurred during the regular hours of work and in the plant. Our procedures, however, do not permit a boilermaker helper to operate such machine unless accompanied by a journeyman boilermaker, a condition which did not exist at this particular time. May we have an expression from the Committee of Judges as to whether this would be considered as in the course of and arising out of employment?"

The committee decided that this case should not be counted in the rates.

"4. Employees are required to submit to smallpox vaccination and typhoid inoculation as a condition of employment. Not infrequently, this procedure results in a reaction which is disabling. Some years ago, this matter was discussed with the Code Committee and our files indicate that they expressed the opinion that such cases should not be charged in the industrial accident rates. Since that time, of course, the code has been revised and the wording used by the Committee of Judges in case number 12 reported April 22, 1947, coupled with the wording of paragraph 3.6.1, prompts me to inquire whether, in the opinion of the Judges, we should continue to exclude such cases from our industrial injury rates."

The committee decided that these cases should not be included in the industrial injury rates.

"5. A switchboard operator in the hydroelectric plant which involved only indoor work, treated his chapped hands with Butesin Picrate Ointment from the first-aid kit in the plant. This particular employee is charged with the responsibility for rendering first aid to employees in the plant on his shift. The Butesin Picrate Ointment apparently irritated the chapped hands and he washed them in Tincture of Green Soap. He subsequently obtained treatment from private physicians which included penicillin injections, x-ray and ultraviolet radiation. He subsequently developed a dermatitis which, in the opinion of one physician, was the result of a reaction to Butesin Picrate Ointment, although it is obviously not very clear as to which of the various medications is entitled to the most blame for his dermatitis. The nature of the man's work did not require exposure to the elements except in coming to and going from work, and yet the chain of events which eventually led to the disability may have started with his use of the ointment from the first-aid kit. Should this case be included in the industrial injury rates?"

The committee decided that if it was clearly shown that the chapped hands were in no way related to employment, then the case should not be counted; if, however, there was a possibility of the chapped hands occurring in the course of employment, then further investigation should be necessary to determine reportability. If it was found that the chapped hands were occasioned by work on the job, then the case should be counted, independent of the employee's responsibility for first-aid treatment.

"6. An employee stationed at a location remote from a medical unit was instructed by his employer to report to the medical

(*Continued on page* 102)

Protection on the High Wires

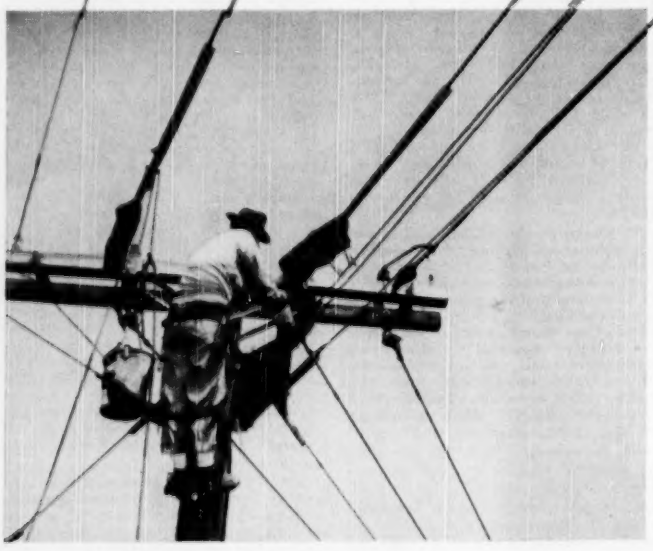
by Gordon Thompson
Chief Engineer, Electrical Testing Laboratories

FOUR new specifications for rubber protective equipment used by electrical linemen have recently been approved as American Standards. These are the successors to war emergency standards developed by an ASA War Committee (Committee J6) back in 1944-1945 when the shortage of rubber gum and of some of the compounding ingredients suggested the possibility of lowered safety factors if substitute materials were used. The war standards developed at that time served well the basic purpose of insuring adequate protection for the lineman and also performed the useful function of presenting standardized requirements which could serve as purchase specifications for the several articles. More than 400 persons in the electrical industry reviewed the specifications before they were adopted and in consequence those war standards enjoyed a wide acceptance in the industry. (See "Standards for Linemen's Safety" in INDUSTRIAL STANDARDIZATION for October 1945.)

With the return of adequate supplies of rubber and of compounding materials, the primary need which had brought these specifications into being disappeared. But the usefulness of the standards had become so well established that it was evident that American Standards for these devices were essential. A "peace-time" sectional committee, again designated as Committee J6, was therefore formed with some 35 members and alternates representing the electrical power industry, the telephone companies, the U. S. Army, the U. S. Navy, the U. S. Department of Labor, the Rural Electrification Administration, the National Safety Council, a number of agencies with general interest in the problems, as well as a strong representation from the leading manufacturers of these devices. The project was sponsored by the American Society for Testing Materials working through their Committee D-11 on Rubber Products, and by the Edison Electric Institute represented by members of their Accident Prevention Committee drawn from the Electric Light and Power Group.

With good rubber, in adequate supply, once more at their disposal, the manufacturers were ready to offer articles that could readily meet much higher requirements as to mechanical strength and elasticity and have ability to resist deterioration in these properties after prolonged exposure to oxygen at high temperatures. In several cases it was deemed expedient to increase the minimum limit for tensile strength by one-third or one-half, and to cut the allowable "set" after stretching to one-half its war emergency value. Articles made to the new standards will be made from good materials.

Copies of the four standards for electrical linemen's rubber protective equipment, that is, for line hose, insulator hoods, sleeves, and blankets, may be obtained, bound into a single pamphlet, from the American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pennsylvania, or from the American Standards Association. Price 50 cents.



Laboratory Rating Used

Translation of the test requirements in terms of conditions of use has been a subject of discussion, often heated, for many years. But the conditions of use present such wide extremes and the safety procedures of users are so varied that the committee deemed it most unwise, and possibly misleading, to suggest the factor of safety to be applied to the test requirements. They therefore contented themselves with "rating" each article in terms of its proof-test voltage hose and hoods 20,000, blankets 16,000, and sleeves 10,000 —applied for three minutes, leaving to each user the responsibility of deciding at what operating voltage the article may be used under his particular conditions and practices. Three paragraphs of the "scope" of

(*Continued on page* 106)

Photos for this article are from Consolidated Edison, Inc. and Edison Electric Institute

A lineman's job is not an easy one. Any accidental contact with a live wire spells disaster. However, the line hose this man is putting up, his sleeves, and rubber gloves will protect him against electric shock in case he should brush against a wire. Other sections of line hose are in the canvas bag secured to the hand line.

Work on up-to-date standards for rubber gloves is still going on in the committee. Because gloves are possibly the most important of all protective equipment, linemen are instructed to inspect them carefully before starting work. An air test (above) shows up scratches and punctures.

Blankets are wrapped around apparatus to prevent accidental contact.

Left: The blankets, as well as all other rubber protective equipment, must be examined carefully before using to detect cuts or punctures.

"Human Factors in Engineering Design"

Applied Experimental Psychology **by Alphonse Chapanis; Wendell R. Garner; and Clifford T. Morgan (John Wiley & Sons, Inc., 440 Fourth Avenue, New York 16, N. Y., 421 pp, 96 illustrations and graphs, $4.50) Reviewed by Dr. John Gaillard, Mechanical Engineer, American Standards Association.**

THE nature of this book, written by three psychologists at The Johns Hopkins University, is indicated in its subtitle, "Human Factors in Engineering Design." It discusses in a clear and attractive way the requirements for most effective cooperation between man and machine. This basically includes an analysis of the possibilities and limitations of such human faculties as vision, hearing, interpretation of observations (and hence, reaction time problems) and, on the other hand, the design of machines and instruments in such a way as to make human operation most effective. Problems of this kind have, of course, become most acute where operating conditions approach or tend to exceed the limits of human endurance, as is the case particularly in the piloting of modern aircraft. Actually, the illustrations used in the book are based largely on experimental data and investigations made by such bodies as the Aero Medical Laboratory, Engineering Division, Wright Field. It is pointed out, however, that many principles discussed here apply equally to man-machine relations other than those between pilot and aircraft.

"Special type" Engineer

It is interesting to note that the authors of the book, in referring to its development, mention not only the psychological background, such as the study of man's behavior in relation to machines and instruments, and the selection of personnel for specific tasks, but also the time, motion, and fatigue studies made by industrial engineers, such as Frank B. Gilbreth. As we know, these studies have led to the development of that special type of engineer in modern industry, the methods engineer, who has to deal all the time with the human element as well as with machine equipment. The methods engineer, particularly, should be highly interested in the findings of the authors. Where repetitive operations or processes are concerned, the methods engineer will naturally propose that his findings, once they have been developed to the point where to his knowledge they are the best available under present conditions, be adopted as *standard* methods. For this reason, the book should also appeal to those engaged in standardization. In fact, the authors are well aware of the importance of standardization. At the end of Chapter 5, Instrument Dials and Legibility, a section reads in part as follows:

"Another very important problem is standardization. When our basic research has progressed far enough so that we know what makes dials effective and when and where to use what kind of dials, we will have to standardize.

"The important principle is here that groups of dials that are used for the same function should be standardized in location, from one situation to the next, from one airplane to the next, or from one ship to the next. The problem is an especially pressing one in the case of aircraft, but it holds equally well in all kinds of man-machine systems.

"McFarland tells us about an investigator from Northwest Airlines who recently conducted a large survey of pilot opinion among a representative group of the Airline Pilots Association. Most of the pilots agreed that standardization of instrument locations is a very necessary and vital step in the design of instrument panels. Most pilots believed that it really did not make very much difference what the final arrangement was so long as the dials were clearly visible and their location was consistent from one plane to the next. In spite of this unanimous opinion on the part of the pilots, however, another recent survey showed an almost complete lack of uniformity in the arrangement of dials on commercial two-engined aircraft now being built. The problem is one that needs prompt and careful attention.

"As an example of how bad these things can get, there are three radio receivers on the panel of the B-314. On one of them, the controls and dials are rotated clockwise to increase the frequency; in the third receiver, they rotatate counterclockwise. In the same aircraft, the co-pilot's air-speed indicator is rotated clockwise by a corresponding motion of the setting knob, but the pilot's meter has a reverse action. The situation is further complicated by the fact that these adjustments vary from one aircraft to another. The pilot, therefore, has to determine the action of his instruments by trial and error each time he flies a different plane."

Scrambled Instruments

What this means in an emergency is shown by a story told by a pilot to two Army Air Force psychologists. He said: "We had an alert one morning about eleven o'clock, because about 35 Japanese planes had been picked up on the radar screen. In the mad scramble for planes, the one I happened to pick out was a brand new ship which had arrived about two days previously. I climbed in, and it seemed the whole cockpit was rearranged. Finally, I got it started, but the Japs hit just about that time. The rest of the gang had gotten off and were climbing up to altitude. I took a look at that instrument panel and viewed the gages around me, sweat falling off my brow. The first bomb dropped just about 100 yards from operations. I figured then and there I wasn't going to take it off, but I sure could run it on the ground. That's exactly what I did—ran it all around the field, up and down the runway, during the attack." (pp 122/123)

Standards From Other Countries

MEMBERS of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Orders may also be sent to the country of origin through the ASA office. The titles of the standards are given here in English, but the documents themselves are in the language of the country from which they were received.

For the convenience of our readers, the standards are listed under their general UDC classifications.

001.4 Terminology

Mexico

Building Terminology Related to Concrete Structures, DGN C23-1949
Terminology Used in Wood Industry, DGN C1-1949
Terminology Used in Paper Industry, DGN M1-1949

001.8 General Methodology. Standards. Specifications.

India

Style Manual for Drafting Indian Standards, IS:12-1949

003 Writing

Austria

General Letter Symbols, ÖNORM A6401

Denmark

Graphical Symbols for Electrical Technical Drawings (2nd edition), DS 160

France

Graphical Symbols, General; For Mechanical and Electrical Installation; For Hydraulic and Fuel Lines, For Instruments on Board, Pr L002 50-L002 54

332 Private Finance

France

Various Forms for Banking Transactions, NF K12-01 to K12-04

The Netherlands

Standard Forms for Bonds and Similar Certificates, N 1075

389.171 Preferred Numbers

Belgium

Preferred Numbers (revised edition), NBN 100

539.4 Strength. Resistance

Switzerland

Role of the Form and of Surface Conditions in Relation to Resistance of Materials, VSM 14331

621.3 Electrical Engineering

Argentina

Test Method of Fibrous Protective Covering of Rubber Insulated Electric Cables, IRAM 2031-P
Edison-Type Screw Base and Holders, Dimensions of, IRAM 2040-P
Color Code for Radio Receiver Connections, IRAM 4041-P

Austria

Steel-Aluminum and Aluminum-Alloy Cables, ÖNORM E4005

France

Brushes for Radial Brush-Holders, NF C10-008
Radial Brush-Holders, NF C10-009
Measuring Electric Apparatus Flush Type, With Circular Flanges, Dimensions of Holes to be Drilled in the Instrument Board for, NF C10-012-1
Measuring Electric Apparatus Flush Type, With Square Flanges, Dimensions for Holes to be Drilled in the Instrument Board for, NF C10-012-2
Measuring Electric Apparatus Flush Type, With Oblong Casing, Dimensions of Holes to be Drilled in the Instrument Board for, NF C10-012-3
Ferro Magnetic Apparatus, Dimensions and Method of Mounting of, NF C10-012-4

Germany

Drain Plug for Oil-Transformers, DIN 42550
Airdrier for Transformers, DIN 42562
Switchboard Ampermeters and Voltmeters, DIN 43701
Lugs for Brush Cables, DIN 46224, B1.2
Standard Air Humidity for Testing Insulating Materials, DIN 57308
Specifications for Transformer- and Switchgear-Oil, DIN 57310
Rules for Testing Insulators for Overhead Telecommunication Lines, DIN 57444
Rules for Arc-Welding Generators, DIN 57540
Rules for High Voltage AC Instruments, DIN 57670
Rules for Evaluation and Testing Grinding and Polishing Machines, DIN 57741
Rules for Construction and Testing High-Frequency Medical Apparatus, DIN 57759
Regulations for Industrial Appliances and Instruments Designed for Frequencies Over 1 kHz, DIN 57775
Regulations for Suppressing Radio-Interference From Machines and Instruments, DIN 57874
Interlocking Reversible Circuit Breaker, DIN 41031
Circuit Breaker Fixed Handle of Plastic Material, DIN 46001

Rumania

Cable Lugs, STAS 243-49
Connecting Lugs for Overhead Lines, STAS 296-49
Straight Insulator Pins for Overhead Lines, STAS 340-49
Curved Insulator Pins for Overhead Lines, STAS 381-49

621.5 Pneumatic Machines. Refrigeration Technology

United Kingdom

Glossary of Terms Used in Refrigeration, BS 1584-1949
Condensing Units for Refrigeration (Electrically-Drawn, Open-Type), BS 1608-1949

621.6 Apparatus for Conveyance and Storage of Gases and Liquids. Conduits and Pumps

France

Tanks for Pressure Fluids, General, Pr L172 80
Cylindrical Tanks, Without Accessories, Pr L 172 81
Spherical Tanks, Pr L 172 85

Germany

Tanks for Compressed Gases, DIN 3390

Switzerland

Fusion Welded Steel Pipes, VSM 10626

621.8 Machine Parts. Hoisting and Conveying Machinery. Power Transmission. Means of Attachment. Lubrication

Austria

Vanishing Portion of Screw Threads, ÖNORM M1802

Belgium

Rules for Construction of Hoisting Machines, NBN 159

France

Adjustable Bolts, NF E27-357
Hexagon Nuts, Rough or Machined, NF E27-411
Open Washer, Removable Type, NF E27-616
Different Types of Wood and Machine Screws and Nuts Used in Railway Industry, NF F03-003

Germany

Two Types of Keys, DIN 6881 and 6883
Flat Hexagon Lock Nut, DIN 30388

The Netherlands

Rings for Chain Slings (revision), N 1154
Carriage Bolts With Plain and Countersunk Rectangular Heads, Whitworth Thread (revision), N 321

Rumania

Different Forms of Keys, STAS 431-434
Special Form of Screw Thread, STAS 162-49

Switzerland

Rational Form of Shafts. Directions, VSM 14331
Various Types of Keys, Parallel, Taper, Tangential, etc, VSM 15110-15115; 15131-15135; 15140

Union of Soviet Socialist Republics

Needle Bearings; Types, Dimensions, GOST 4657-49
Metric Thread, Tight Fit, Allowances, GOST 4608-49
Protective Lubricants for Aircraft Motors, GOST 4807-49

United Kingdom

Split Cotter Pins, BS 1574-1949

621.9 Machine Tools. Tools. Operations, In Particular for Metal and Wood

Austria

Blades for Saw Mill Frames, ÖNORM M4401

Rumania

Miner's Sledge Hammer, STAS 305
Miner's Ax, STAS 307
Buck Saw, Swedish Type, STAS 309
Various Forms of the Lathe Cutting Tools, STAS 352-4; 356; 359; 362-368; 370-372; 374-377; 379; 380
Metric Taper Tool Shanks, STAS 248-49
Drift Keys for Removing Taper Shanks From Sockets, STAS 250-49
Steel Sockets for Morse Taper Shank Tools, STAS 251-49
Steel Sleeves for Morse Taper Shank Tools, STAS 252-49
Morse and Metric Taper Shanks, STAS 253-49
Groove-Cutting Tool, STAS 360-49
Cutting Tool, Roughing, STAS 378-49
Morse Taper Shanks, STAS 249-49
Various Forms of Cutting Tools, STAS 351; 355; 357; 358; 361; 369; 373-49

United Kingdom

Hand Hammers, BS 876-1949
Press Tool Sets, BS 1609-1949

631.3 Agricultural Tools and Machinery

Belgium

Cultivators for Animal Drive, NBN 185-1949
Ploughs for Animal Traction, NBN 177
Harrows for Animal Traction, NBN 182
Cultivators for Animal Traction, NBN 183
Grain Drills for Animal Traction, NBN 184
Fertilizers for Animal Traction, NBN 194

France

Fertilizers, U 23-301

662 Pyrotechnics. Explosive Materials, Combustibles

Rumania

Dynamite, STAS 418
Explosive Gelatine, STAS 419-49

Spain

Test of Explosives in a Block of Lead, UNE 31001
Estimation of Principal Characteristics of Explosive Powders, UNE 31002
Trinitroluene, UNE 31201

663 Technical Microbiology. Beverages. Tobacco

Mexico

Official Standard for Spirits Distilled From Tequila, DGN R9-1949

Rumania

Vinegar, Comestible, STAS 157-49

Union of South Africa

Specification for Orange Barley-Water, SABS 91-1949

666 Glass and Ceramic Industry. Artificial Stone

Israel

Sampling and Compression Testing of Fresh Concrete (Tentative Standard), S.I.I. 26T

Rumania

Clay and Refractory Products, Chemical Analysis of, STAS 166-49
Portland Cement, Chemical Analysis of, STAS 226-49
Portland Cement, Technical Specifications, STAS 388-49
Refractory Products, Classification, STAS 130
Moulded Refractory Products. Specifications, STAS 133
Refractory Mortar for Ceramics From Refractory Clay, STAS 134
Silica Refractory Products, STAS 135
Product of Grog Refractory Clay (Chamot), STAS 136
Refractory Clay for Crucibles and Fine and Coarse Ceramics, STAS 230, 231
Raw Materials for Ceramics. Method of Analysis, STAS 69-49
Refractory Materials: Determination of the Degree of Refractoriness, STAS 124-49; Nomenclature and Symbols, STAS 132-49
Silicon Refractory Products. Chemical Analysis, STAS 167-49

Union of South Africa

Specification for Glass Milk Bottles, SABS 33-1948

667.7/.8 Varnishes. Lacquers. Polishes

India

Specification for Seedlac, IS:15-1949
Specification for Shellac, IS:16-1949
Specification for Dry Bleached Lac, IS: 17-1949

669 Metallurgy

Argentina

Ferrochromium, IRAM 555-P
Method of Chemical Analysis of Carbon Steel, IRAM 584-P
Seamless Intermediate Alloy Steel Tubes Used in Still Installations, IRAM 2532-P

Denmark

Testing of Metals: Symbols, Nomenclature, Definition, DS 10010; Tensile Test, Type A Test Piece, Supplement A, Type B Test Piece, Supplement B, Type C Test Piece, Supplement C, Type D Test Piece, Supplement D to DS 10110; Bending Test, DS 10310; Brinell Hardness Test, DS 10410; Vickers Hardness Test, DS 10411; Rockwell Hardness Test, DS 10412

France

Supplements to: Square Billets, A 43-101; Slabs, A 43-102; Large Plates, A 43-104

Germany

Gray Iron Castings, DIN 1691
Special Sections for Window Frames, DIN 4445, 4446
Iron and Steel. Nomenclature System. General, DIN 17006, B1.1
Iron and Steel. Nomenclature System. Forged or Rolled Non-Alloy Steel, DIN 17006, B1.2
Iron and Steel. Nomenclature System. Forged or Rolled Alloy Steel, DIN 17006, B1.3
Iron and Steel. Nomenclature System. Cast Steel. Cast Iron. Malleable Cast Iron, DIN 17006, B1.4
Iron and Steel. Nomenclature System. General Tabulation. Examples, DIN 17006, B1.9

Mexico

Quality Standard for Steel Balls Used in Mineral and Similar Grinding Mills, DGN B37-1949

Rumania

Metal for Bearings, STAS 202
Brass and Copper Strips and Bars, STAS 389, 392/3/4
Equal Angle Sections, STAS 424
Zee Sections, STAS 559
Chanels, STAS 567
Brass in Plates, STAS 289-49
Square Brass Bars, STAS 292-49
Hexagonal Brass Bars, STAS 293-49
Round Copper Bars, STAS 391-49
Silver-Copper Solder, STAS 295-49
Round Steel Bars, Hot-Rolled. Dimensions and Tolerances, STAS 333-49
Square Steel Bars, Hot-Rolled. Dimensions and Tolerances, STAS 334-49
Steel Plates. Dimensions and Tolerances, STAS 335-49
Steel Strips, Hot-Rolled. Dimensions and Tolerances, STAS 395-49

Switzerland

Steel Bars, Cold-Drawn, for Keys, VSM 11102/3

677 Textile Industry

France

Hemp, Manila or Sisal Cablets of 3 or 4 Hawsers

India

Procedure for Testing Cotton Textiles and Cordages (Other Than Jute) for Resistance to Attack by Micro-Organisms, IS: 19-1949

Switzerland

Weft Pirn and Gage for Ring-Spinning Machines (Cotton), VSM 31711
Warp Bobbins and Gage for Ring-Spinning Machines, VSM 31713
Rings for Ring-Spinning and Twisting Machines, VSM 31715

Union of Soviet Socialist Republics

Cotton Yard Goods, Unbleached. Packing and Marking, GOST 4561-49

677.53 Metal Tissue

Union of Soviet Socialist Republics

Steel-Wire Tissue With Square Mesh, Twill Weave, GOST 4601-49

679.5 Plastics Industry in General

Switzerland

Thermo-Plastic Materials. Definitions, VSM 77120

744 Technical Drawings

France

Technical Drawings. Projections. Cross Sections. Lines. Section Lines. Lettering, NF E04-101

Germany

Technical Drawings. Dimensioning, DIN 406
Technical Drawings. Sizes. Borders, etc, DIN 6777, B1.1
Technical Drawings. Bill of Materials Block. DIN 6771, B1.2
Technical Drawings. Sizes. Borders. Bill of Materials Block and Title Block, DIN 6781

Rumania

Technical Drawings: Conventional Sections, STAS 105; Lettering, STAS 186; Color and Graphical Code for Various Fluid Conduits, STAS 185-49

Received from Australia

Approval and test spec for electric grillers (including grill-boilers, boiling plates and the like), C.102-1949
Approval and test spec for domestic electric ranges, C.146-1949
Lead-acid train-lighting accumulators (this is BSS 454-1938 endorsed by SAA with certain amendments), C.304-1949
Railway permanent way material, E.22 to 29-1949

Book Reviews

ASTM Standards on Soaps and Other Detergents. (American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa. 132 pp. $1.75)

The November 1949 edition of this publication, prepared by ASTM Committee D-12 on Soaps and Other Detergents, brings together in convenient form all of the ASTM standards pertaining to soaps and other detergents. These include the standards that have been processed through the American Standards Association and approved as American Standard. In all there are 32 specifications and tests giving quality requirements.

Specifications for soap cover the following: bar and various kinds of chip soaps; powdered and salt water soaps; olive oil and palm oil solid soaps; milled, floating and liquid toilet soaps.

Specifications for detergents cover: borax; soda ash; caustic and modified soda; sodium bicarbonate, metasilicate and sesquisilicate; trisodium phosphate; tetrasodium pyrophosphate (anhydrous).

Methods of tests and analytical procedures include: sampling and chemical analysis of soaps and soap products and of soaps containing synthetic and alkaline detergents; chemical analysis of sulfonated and sulfated oils and of industrial metal cleaning compositions; test methods for particle size of soaps and other detergents; and total immersion corrosion test of water-soluble aluminum cleaners.

Definitions of terms relating to soaps and other detergents are also included.

ASTM Standards on Textile Materials (with Related Information). 1949 edition. (American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa. 586 pp, heavy paper cover. $4.50)

The 1949 edition of ASTM Standards on Textile Materials includes in their latest form 84 specifications, test methods, and tolerances developed by Committee D-13 on Textile Materials. Included are those standards processed through the American Standards Association and approved as American Standard. Considerable other related material is given.

Of the standards, 23 cover cotton; 9 rayon and silk; 11 wool; 7 asbestos; 6 glass; and 5 come under the heading, bast and leaf fibers. The balance of the standards are general testing methods, etc. Some of these cover testing machines, definitions of terms, fire-retardant properties, air permeability of textile fabrics, interlaboratory testing, resistance to water and insect pests, quantitative analysis, determining small amounts of copper, manganese, and nickel, determining relative humidity, stretch of hosiery, and many more.

In addition to the standards on textiles, there are given a psychrometric table for relative humidity which combines both accuracy and convenience to an exceptional degree, photomicrographs of common textile fibers and of defects in woven fabrics, a convenient yarn number conversion table, a glossary of textile terms, and terms relating to hand of fabrics.

A.S.T.M. Standards on Coal and Coke (with Related Information). American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa. 164 pp. $2.00.

This compilation, sponsored by A.S.T.M. Committee D-5 on Coal and Coke, brings together in convenient form all of the A.S.T.M. Standards on Coal and Coke. It gives 28 test methods, specifications, and definitions of terms in their latest approved form, and numerous proposed methods.

Test methods and procedures on coal cover sampling, analysis for volatile matter in connection with smoke ordinances, grindability, drop shatter test, tumbler test, screen analysis, size, sieve analysis, cubic foot weight, index of dustiness, and free-swelling. Specifications cover classification of coals by rank and grade.

For coke there are standardized methods for sampling, and tests for volume of cell space, drop shatter, tumbler, sieve analysis, cubic foot weight, and index of dustiness.

There are also a number of definitions relating to coal and coke.

Appendices give *proposed* methods covering: expansion pressure of coal during coking; plastic properties of coal by the Davis type plastometer and by the Gieseler type plastometer; carbonization pressure of bituminous coal; measurement of pressures developed during carbonization of coal by the movable wall oven; expansion properties of coal for use in by-product coke ovens by means of the Bethlehem test oven; test for pressures, strains, and other properties developed during carbonization of coal; and test for agglutinating value of coal.

ASTM Standards on Industrial Water (142 pp, paper cover. American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa. $1.75)

Twenty-six standard methods of sampling, analysis, and testing industrial water are included in this compilation. These methods, prepared by ASTM Committee D-19 on Industrial Water, have been developed for the examination of water used industrially in the generation of steam or for process or cooling purposes, and for the examination of deposits formed from such waters. The book also includes a list of ASTM symposiums and technical papers on industrial water.

ASTM Standards on Gaseous Fuels (American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa. 100 pp. Paper cover, $1.50)

This special compilation, issued December 1949, contains the three standardized tests developed by ASTM Committee D-3 on Gaseous Fuels. This group has had extentive research work under way for several years. The three tests cover calorific value of gaseous fuels by the water-flow calorimeter; specific gravity of gaseous fuels; and measurement of gaseous fuel samples.

Warning Labels, 2nd revised edition. Manual L 1. (Manufacturing Chemists Association, Inc. 246 Woodward Building, Washington 5, D. C. $1.00)

This manual, originally published in 1945, has been completely rewritten and revised. In addition to new information it has been rearranged into a 6 x 9 inch size, loose leaf, and comprises 86 pages.

The manual is intended to facilitate an effective, uniform pattern of chemical labeling throughout the nation, and to protect the ultimate consumer in the handling and use of chemicals. It is divided into three parts: (*a*) general principles involved in the design and preparation of warning labels for hazardous chemicals, (*b*) 180 illustrative warning labels for industrial chemicals, and (*c*) 58 illustrative warning labels for economic poisons.

Included in the booklet are principles for labeling small commercial packages and products intended for investigational use; container handling and storage instructions; definitions of pertinent terms, including a quantitative definition of the term "poison," related to exposure by contact, inhalation, or oral intake; and a table outlining statements of hazard, precautionary measures, and instructions in case of contact or exposure, based on the class of hazard encountered.

Principles contained in the manual have served as a basis for labeling requirements issued by several states and territories.

Mechanical Drafting Handbook, by F. R. Kepler and W. Bettencourt. 5th Edition. (Bruce Publishing Company, Milwaukee, Wisconsin)

To provide students and draftsmen with a brief collection of usages, standards, conventions, tables, and other information based on the best modern practice is the purpose of this 181-page book.

The text of this fifth edition has been revised extensively and new topics have been added. Many of the original figures have been changed and over 20 new ones have been added. Such topics as surface quality, cylindrical fits, aircraft rivets; steels, their characteristics, classification, and uses with code numbers; formulas for gearing; and a glossary of terms have also been added.

Nearly all the tables have been thoroughly revised and rearranged, and 18 new tables are included for the first time. All have been checked with the standards of engineering societies as approved by the American Standards Association.

The drafting practices discussed in this book adhere closely to those approved by the ASA in American Standard Drawings and Drafting Room Practice, Z14.1-1946.

Mica

(*Continued from page 93*)

designations reflecting the metric units of usable space in each grade is a definite improvement over previously accepted terms for grade designations."

Bureau of Mines: suggests that the definition for crude mica should also include synthetic inorganic products (now being produced) having chemical compositions analagous to the micas and possessing the physical structure and properties of them.

Bureau of Federal Supply and National Bureau of Standards both suggest some changes in dimensions by classes of thins and change in the system of minimum dimensions to

prevent inclusion of too great a proportion of "strip" mica in each grade. They do not believe the size should be lowered to include 1 inch diameter.

Bureau of Federal Supply believes that only 5 percent by weight of "V" cuts should be allowed and suggests that "V" cut sizes be restricted to no more than one-fourth of width of piece measured at point of cut. Tolerances for grades from 4 through 5½ are too liberal, then believe.

On the proposed Indian classification of mica, the U. S. Chamber of Commerce requests that an attempt be made to standardize the inspection tables and lighting conditions. The Bureau of Mines had this to say: "It appears that some specific method for evaluating mica based on its electrical resistance should be established, particularly since synthetic products analogous to natural micas are now being produced. Until the methods and mechanics of testing the electrical resistance of mica definitely have been agreed upon, however, the requirements of visual classification set forth in this draft appear to be adequate."

Comments on the proposed Indian mica standards from NEMA and ASTM brought out differences of opinion similar to those voiced by France, representatives of the U. S. Government agencies and the U. S. Chamber of Commerce. NEMA confined its criticism and suggestions to splittings and ASTM covered block and condenser mica. In general, NEMA suggested the substitution of its own standard on grading of mica splittings, and ASTM submitted a 17-page proposal, Specifications for Natural Muscovite Mica Based on Visual Quality, intended as a substitute for the two proposed Indian measures.

NEMA noted the overlap in size areas in the Indian proposals.

Both NEMA and ASTM are opposed to changing from the numerical to the metric system of grade designation. NEMA termed it, " . . . difficult and confusing . . . even though it may be an improvement over present methods."

On the controversial "V" cuts, NEMA suggests that not more than 5 percent by weight be allowed. Total area of mica splittings, they contend, should not be more than two times its usable size; strip mica restricted to 5 percent of a shipment by weight.

ASTM headed its comments with a laudatory note to the Indian Standards Institution for the manner in which it had approached the task of attempting to standardize "a commodity having the many varying and unpredictable characteristics that mica possesses".

ASTM Differences

The ASTM does differ with the secretariat proposals, however, in a number of categories. It believes that three-quarter trim mica should be discouraged as an obsolete war-time practice. (As an emergency measure during the war, American Mica Producers attempted to "full-trim" mica, but poor results led to the term "three-quarter" trim to differentiate between the American "one-half" trim and the Indian "full-trim" method.) For full-trim mica, ASTM believes the total area should not exceed one and one-half times the usable area and two and one-half times for one-half trim mica. ASTM would limit "V" cuts to 10 percent by weight in any one box.

"Minimum dimensions for one side" as proposed by the secretariat also brought protest from ASTM as " . . . (allowing) too great a proportion of 'strip' mica (outsized, oblong pieces) in each grade". Minimum area, they also believe, should not be lowered to include one inch diameter.

Thicknesses of book-form splittings and specifications for loose splittings as proposed in the Indian measures did not get ASTM concurrence — ASTM proposes adoption of its own set of specifications.

A subcommittee of ISO/TC 56 is now studying the differences of opinion evidenced in the above comments. The importance of international mica standardization is realized, however, and the member-countries are in accord for the need of international agreement. The course of mica production and use is strategically important, if unpredictable. The Swiss have reportedly developed a mica powder film made entirely from mica powder. Additionally, synthetic mica is no longer in the realm of theory — the U. S. Bureau of Standards has developed a synthetic product and is working on a refinement of the process now to enlarge the size of the crystals. With these possibilities in mind, the Indian mica producers are considering the possibility of setting up a Central Research Institute to deal only with mica and to explore the possibilities of starting indigenous industries for the consumption of mica in India.

The Visual Classification system of block mica used for condensers, a point of contention between producers and users, may also evolve into new techniques. An American manufacturer has produced instruments and methods of tests for objective classification for this form of mica, eliminating the personal factors of inspection.

Watch for further information on the international standardization of mica to be reported later.

Rulings

(*Continued from page* 95)

unit, approximately 100 miles away, for a periodic health examination. He arrived in the city at 10:30 P.M., went to a hotel and apparently retired. The following morning, while taking a shower in his hotel, he slipped and fell, striking his head against an unidentified object in the bathroom. This occurred at approximately 6:30 A.M. and he was apparently unconscious until 7:05 A.M., at which time he called the hotel physician who attended him and took four stitches in the cut in his head. He was seen by the company physician, given the periodic health examination, and returned to his station. Although not considered disabled by the company physician at the time of the health examination, the company physician considers it is not unreasonable that he subsequently lost approximately two days as a result of this experience. Would this case be included in the industrial injury rates?"

The committee decided that it was not the intent of the code, as outlined in paragraph 2.1.5, that this case should be included in the records, since the injury occurred at a time when the employee was not on duty.

• • The National Electrical Manufacturers Association announces completion of its Seventh Edition of the Uniform Accounting Manual for the Electrical Manufacturing Industry.

AMERICAN STANDARDS

Status as of March 6, 1950

American Standards Approved Since February 6, 1950

Wrought Steel and Wrought Iron Pipe, B36.10-1950 (Revision of B36.10-1930)
Sponsors: American Society of Mechanical Engineers; American Society for Testing Materials

Graphical Symbols for Railroad Equipment, Z32.2.5-1950

Graphical Symbols for Heat-Power Apparatus, Z32.2.6-1950
Sponsors: American Society of Mechanical Engineers; American Institute of Electrical Engineers

Safety Code for the Prevention of Dust Explosions in Terminal Grain Elevators, Z12.4-1950 (Revision of Z12.4-1942)

Safety Code for the Prevention of Sulphur Dust Explosions and Fires, Z12.12-1950 (Revision of Z12.12-1946)

Safety Code for the Prevention of Dust Ignitions in Country Grain Elevators, Z12.13-1950 (Revision of Z12.13-1946)
Sponsor: National Fire Prevention Association

Shutter Cable Release Tip and Socket With Taper (European) Thread, Z38.7.14-1950 (Revision of Z38.7.14-1942)

Shutter Cable Release Tip and Socket With Straight (American) Thread, Z38.4.6-1950 (Revision of Z38.4.6-1942)

Picture Sizes for Roll Film Cameras, Z38.4.8-1950 (Revision of Z38.4.8-1944)

Requirements for Photographic Wetting Agents, Z38.8.14-1950

Method for Determining Residual Thiosulfate and Tetrathionate in Processed Photographic Papers, Z38.8.25-1950

Lens Aperture Markings, Z38.4.7-1950 (Revision of Z38.4.7-1943)
Sponsor: Optical Society of America

Proposed American Standards Being Considered for Approval

By the Standards Council—

Specifications for Portland Cement (ASTM C 150-49; ASA A1.1)

Specifications for Air-Entraining Portland Cement (ASTM C 175-48T; ASA A1.16)

Specifications for Masonry Cement (ASTM C 91-49; Revision of ASA A1.3-1948)

Methods of Test for Compressive Strength of Hydraulic Cement Mortars (ASTM C 109-49; Revision of ASA A1.4-1948)

Methods of Chemical Analysis of Portland Cement (ASTM C 114-48T; Revision of ASA A1.6-1948)

Methods of Test for Autoclave Expansion of Portland Cement (ASTM C 151-49; Revision of ASA A1.8-1948)

Methods of Test for Air Content of Portland Cement Mortar (ASTM C 185-49T; Revision of ASA A1.9-1948)

Methods of Test for Heat of Hydration of Portland Cement (ASTM C 186-49; Revision of ASA A1.10-1948)

Method of Test for Normal Consistency of Hydraulic Cement (ASTM C 187-49; Revision of ASA A1.11-1948)

Method of Test for Soundness of Hydraulic Cement Over Boiling Water (Bat Test) (ASTM C 189-49; Revision of ASA A1.13-1948)

Method of Test for Tensile Strength of Hydraulic Cement Mortars (ASTM C 190-49; Revision of ASA A1.14-1948)

Method of Test for Time of Setting of Hydraulic Cement by the Vicat or Gillmore Needles (ASTM C 191-49; Revision of ASA A1.15-1948)
Sponsor: American Society for Testing Materials

Gray Finishes for Industrial Apparatus and Equipment, Z55.1
Sponsor: Mechanical Standards Committee

Location and Size of Picture Aperture of 16-mm Motion Picture Cameras, Z22.7

Location and Size of Picture Aperture of 16-mm Motion Picture Projector, Z22.8

Location and Size of Picture Aperture of 8-mm Motion Picture Cameras, Z22.19

Location and Size of Picture Aperture of 8-mm Motion Picture Projectors, Z22.20

Dimensions for Mounting Frames for Theater Projection Screens, Z22.78

16-mm Sound Projector Test Film, Z22.79
Sponsor: Society of Motion Picture Engineers

By the Board of Review—

Single Point Tools and Tool Posts, B5.22

Punch and Die Sets, for Two Posts, Punch Press Tools, B5.25

Involute Serrations, B5.26
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers; National Machine Tool Builders' Association; Metal Cutting Tool Institute

Code for Identification of Gas Mask Canisters, K13 (Revision of K13-1930)
Sponsor: National Safety Council

By the Board of Examination—

Structural Clay Load-Bearing Wall Tile (Revision of ASTM C34-41; ASA A74.1-1942)

Structural Clay Non-Load-Bearing Tile (Revision of ASTM C56-41; ASA A76.1-1942)

Structural Clay Floor Tile (Revision of ASTM C57-1939; ASA A77.1-1942)
Sponsor: American Society for Testing Materials

By the Consumer Goods Committee—

Methods of Sampling and Chemical Analysis of Alkaline Detergents (Revision of ASTM D501-46; ASA K60.21-1948)
Sponsor: American Society for Testing Materials

Specifications and Test Procedure for Household Electric Ranges, C71
Sponsor: National Electrical Manufacturers Association

By the Building Code Correlating Committee

Portable Steel and Wood Grandstands, Z20.1

Grandstands, Tents and Other Places of Outdoor Assembly, Z20.2
Sponsors: National Fire Protection Association; Building Officials Conference of America

By the Electrical Standards Committee—

Specifications and Test Procedure for Household Electric Ranges, C71
Sponsor: National Electrical Manufacturers Association

By the Mechanical Standards Committee—

Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses (ASTM A 120-47; ASA B36.20)

Seamless Alloy-Steel Pipe for High-Temperature Service (ASTM A 158-48T; ASA B36.21)

Seamless Carbon-Molybdenum Alloy-Steel Pipe for High-Temperature Service (ASTM A 206-48T; ASA B36.22)

Welded Alloyed Open-Hearth Iron Pipe (ASTM A 253-47; ASA B36.23)

Seamless Chromium-Molybdenum Alloy-Steel Pipe for Service at High Temperatures (ASTM A 280-48T; ASA B36.24)

Seamless 1-Percent Chromium, 0.5 Percent Molybdenum Alloy-Steel Pipe for Service at High Temperatures (ASTM A 315-48T; ASA B36.25)

Seamless and Welded Austenitic Stainless Steel Pipe (ASTM A 312-48T; ASA B36.26)

Welded and Seamless Steel Pipe (ASTM A 53-47; ASA B36.1-1945)

Welded Wrought Iron Pipe (ASTM A 72-45; ASA B36.2-1939)

Seamless Carbon-Steel Pipe for High-Temperature Service (ASTM A 106-48T; ASA B36.3-1942)

Electric-Resistance-Welded Steel Pipe (ASTM A 135-46; ASA B36.5-1945)

Electric-Fusion-Welded Steel Pipe (Sizes 4 in. to but not Including 30 in.) (ASTM A 139-46; ASA B36.9-1942)
Sponsors: American Society for Mechanical Engineers; American Society for Testing Materials

Twist Drills, Straight Shank and Taper Shank, B5.12 (Revision of B5.12-1940)
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers; National Machine Tool Builders' Association; Metal Cutting Tool Institute

High Strength High-Temperature Internal Wrenching Bolts, B18.8

Plow Bolts, B18.9
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

20-Degree Involute Fine-Pitch System, B6.7

Fine-Pitch Straight and Bevel Gears, B6.8

Design for Fine-Pitch Worms and Worm Gears, B6.9
Sponsors: American Society of Mechanical Engineers; American Gear Manufacturers Association

Milling Cutters, Nomenclature, Principal Dimensions, etc, B5.3 (Revision of B5c-1930)
Sponsors: National Machine Tool Builders' Association; Metal Cutting Tool Institute; American Society of Mechanical Engineers; Society of Automotive Engineers

Request for Reaffirmation of American Standards

Method of Sampling Hydraulic Cement (ASTM C 183-46; ASA A1.2-1948)

Method of Chemical Analysis of Portland Cement (ASTM C 114-47; ASA A1.5-1948)

Method of Test for Fineness of Portland Cement by the Turbidimeter (ASTM C 115-42; ASA A1.7-1948)

Method of Test for Specific Gravity of Hydraulic Cement (ASTM C 188-44; ASA A1.12-1948)

Specifications for Concrete Building Brick (ASTM C 55-37; ASA A75.1-1942)

Specifications for Sand-Lime Building Brick (ASTM C 73-39; ASA A78.1-1942)

Specifications for Hollow Load-Bearing Concrete Masonry Units (ASTM C 90-44; ASA A79.1-1944)

Specifications for Concrete Masonry Units for Construction of Catch Basins and Manholes (ASTM C 139-39; ASA A73.1-1942)

Specifications for Solid Load-Bearing Concrete Masonry Units (ASTM C 145-40; ASA A81.1-1942)

Methods of Sampling and Testing Concrete Masonry Units (ASTM C 140-39; ASA A84.1-1942)

Specifications for Hollow Non-Load-Bearing Concrete Masonry Units (ASTM C 129-39; ASA A80.1-1942)

Requested by: American Society for Testing Materials

Request for Withdrawal of American Standards

Tool Shanks and Tool Posts for Lathes, Planers, Shapes, Boring Mills and Turret Lathes, B5.2-1943

Terminology and Definitions for Single Point Cutting Tools, B5-13-1939

Requested by: American Society of Mechanical Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association; Society of Automotive Engineers

Standards Submitted to ASA for Approval

Relays Associated With Electric Power Apparatus, C37.1 (Revision of C37.1-1937)

Approval Requested by: Electrical Standards Committee

Recommended Practice for Mechanical Refrigeration Installations on Shipboard, B59

Method of Rating and Testing Refrigerant Expansion Valves, B60

Approval Requested by: American Society of Refrigerating Engineers

Abbreviations for Use on Drawings, Z32.13 (Revision of Z32.13-1946)

Approval Requested by: American Institute of Electrical Engineers; American Society of Mechanical Engineers

Dimensions for Amateur Roll Film, Backing Paper and Film Spools, Z38.1.7 (Revision of Z38.1.7-1943 through Z38.1.24-1943)

Approval Requested by: Optical Society of America

What's Happening on Projects

Rayon Fabrics, L22—

Sponsor: National Retail Dry Goods Association

A further step toward standards that will help in selecting rayon fabrics best suited to their use was taken at a meeting of the Rayon Fabric Sectional Committee February 15. The committee voted to accept the work done by its technical committees and to send 50 proposed American Standards to letter ballot. These proposed standards provide means of determining the performance of rayon fabrics for men's and women's clothing and for home furnishings. The next step is approval by the national organizations that are members of the committee. At least three months will be given them to study the proposals and determine whether they are acceptable before the vote will be taken.

The work is a milestone in the textile industry since it is the first time that producers, distributors, and consumers have all met together to iron out differences and to reach agreement on what constitutes satisfactory performance of textile fabrics. Such problems as shrinkage, colorfastness, crease resistance, and permanence of finish were discussed in detail by the technical subcommittees in which all groups were represented. Some of the producer organizations which had participated in the technical work of the subcommittees were present at the sectional committee meeting but had withdrawn from active participation to the status of observer. They took part in the discussions but did not vote.

The tests to be used in checking whether the rayon fabric meets standard requirements were selected and developed from existing methods of such agencies as the American Society for Testing Materials, the National Bureau of Standards, the American Viscose Corporation, the Federal Specifications Board, and the American Association of Textile Chemists and Colorists. These tests will also be studied by the Sectional Committee on Fastness Tests of Textiles, L14, to determine whether those that are not American Standards should be recommended for ASA approval.

In accepting the standard requirements and tests, the sectional committee declared that care would be taken to leave the industry free to exercise its ingenuity and creative ability. The main objective of this program is "to set test requirements of satisfactory performance for rayon fabrics for each end-use irrespective of the innumerable weaves, constructions, finishes, and names of fabrics which usually change from year to year." Through ingenuity and creative ability industry and commerce enrich the variety of goods through different weaves, finishes, and colors, the committee pointed out. In order that there may be no possibility of limiting the development of new designs, names of fabrics and their constructions are not to be included in the standards.

It was explained at the sectional committee meeting that use of the standards will be entirely voluntary. Representatives present at the meeting declared that the proposed standards will give information about the fabrics that is now lacking and will make it possible for retailers to offer consumers rayon fabrics that they know will give satisfactory performance. Customers will then be able to choose whether to buy those fabrics meeting standard requirements or whether, on the other hand, to buy on the basis of low cost without assurance of performance.

"We, the retailers, feel that we must find a way to satisfy the consumers by providing them with comprehensive informative labeling," declared Henry G. Leef, divisional merchandise manager, Woodward and Lothrop, Washington, D. C., representing the National Retail Dry Goods Association. "We feel that the procedures of the American Standards Association are the most acceptable means to achieve it. We also feel that we are capable of self-regulation and that such self-regulation will strengthen our position as free enterprisers in our relation with the government and with the public."

Special interest in the work of the committee was indicated by a delegation of executives from the Canadian Retail Federation. [See page 93.]

Henry Miller, Director of the Trade Practice Conference of the Federal Trade Commission, also attended the meeting. He told the committee that legislation requiring labeling has come about largely because voluntary efforts have lagged behind. "Insofar as industry itself takes care of the main need for labeling, that is the measure for preventing legislation that requires labeling," he said.

Now that the work of the technical subcommittees has been completed, plans are being made by the Rayon Fabrics Committee for development of a program that will get information about the standards to the consuming public. Harold Merahn, sales promotion manager and vice-president, Gertz Department Store, Jamaica, Long Island, is chairman of a subcommittee that will work out ideas for promoting the use of the standards. These plans will be presented to the sectional committee for approval.

Dr Pauline Beery Mack, who has been representative of the American Home Economics Association on the ASA Consumer Goods Committee, as well as on the L22 Rayon Fabrics Committee, was honored recently by the American Chemical Society. She was awarded the Frances P. Garvan Medal for women who have done outstanding work in chemistry. Dr Mack is Director of the Ellen H. Richards Institute, Pennsylvania State College.

Mr Merahn envisions that his committee may use newspaper advertising, direct mail advertising, signs and displays in retail stores, and certification and labeling of the fabrics to bring the standards to the attention of the public as well as retailers themselves. He suggests that sales people might be trained to tell customers which fabrics meet the requirements of the American Standards. He also expects his committee to work through consumer groups such as local women's clubs.

A number of prominent retailers have already promised to serve on this committee. Additional representatives from the retailing field, as well as manufacturers and consumers, are being invited to complete the membership of the committee. The members at present are:

James Rotto, Hecht's, Washington, D.C.

George Slockbower, Bamberger's, Newark, N. J.

Wm. Tobey, Abraham & Straus, Brooklyn, N. Y.

Victor North, Stern Brothers, New York, N. Y.

Charles Edwards, Dean of the School of Retailing, New York University, New York, N. Y.

Jack Edgerton, Marketing Manager, W. T. Grant, New York, N. Y.

Ned Baron, Advertising Manager, Interstate Stores, New York, N. Y.

Russell Brown, Sales Promotion Manager, Allied Stores, New York, N. Y.

W. B. Terry, Vice-President, Julius Kayser & Company, New York, N. Y.

Chas W. Rice, Advertising Manager, American Viscose Corporation, New York, N. Y.

Due to the illness of Jay D. Runkle, Crowley, Milner and Company, Detroit, chairman of Sectional Committee L22, Gordon Creighton, vice-chairman, presided at the February 15 meeting. Mr Creighton, Assistant General Manager and Assistant Treasurer of the National Retail Dry Goods Association, offered his resignation as vice-chairman in view of his impending retirement May 1. Henry G. Leef, divisional merchandise manager, Woodward and Lothrop, Washington, D.C., was elected vice-chairman, succeeding Mr Creighton.

Office Standards, X2

Sponsor: National Office Management Association

Subcommittee 4 on office supplies has submitted the first draft of Proposed American Standard Specifications for Noncarbonized, Single Ply, Adding Machine Paper Rolls to sectional committee X2 for approval. The standards specify "the terminology; roll widths; number of feet per roll; paper substance and quality, thickness, finish, color, brightness, opacity, tearing and bursting strength; diameter of rolls, cutting and winding; core materials, diameter and diameter of hole; roll and sealing; quantity packaging and cartoning; box and carton end marking" of the noncarbonized, single ply, adding machine paper rolls.

Insulated Wires and Cables, C8

Sponsor: National Electrical Manufacturers Association

The National Electrical Manufacturers Association has submitted five of its standards on insulated wire and cable to sectional committee C8 with the request that they be considered for approval as American Standards. These standards cover rubber insulated power and control cables; rubber insulated building wire and cable; thermoplastic insulated wire and cable; asbestos-varnished-cambric and asbestos-synthetic insulated wires, cables and cords; and armored cable and armored cord.

Electric Lamps, C78

Sponsor: Electrical Standards Committee

H. J. Berka has been appointed chairman of subcommittee 2, on electric discharge lamps to succeed G. L. Diggles. Mr Berka represents the Bell Telephone Laboratories, Inc, on this subcommittee.

Lamp Ballasts, C82

Sponsor: Electrical Standards Committee

The first two proposed standards on ballasts are being published now for a one-year trial and study period. These standards cover the measurement of fluorescent lamp ballasts and fluorescent lamp reference ballasts. At the end of the year sectional committee C82 will study the comments received and use them as a guide in the preparation of final drafts of these standards.

Protective Lighting and Industrial Properties, A85

Sponsor: Illuminating Engineering Society

The Safety Code Correlating Committee has just approved the change in sponsorship of sectional committee A85 from the National Electrical Manufacturers Association to the Illuminating Engineering Society. This project on Protective Lighting for Industrial Properties was initiated on a regular peacetime basis by the SCCC at its meeting on April 28, 1949.

Glossary of Terms in Nuclear Science and Technology, Z63—

A new Glossary of Terms in Nuclear Science and Technology, still being edited by a Committee of the National Research Council, will be made generally available soon through publication of its nine sections as Proposed American Standards. This decision was made at a Conference in January of this year. The national scientific and technical societies, trade associations, and national governmental organizations helped in preparation of the Glossary. The new compilation of nuclear terms represents coordination and extension of the work started by these organizations. The ASME Nuclear Energy Glossary Committee prepared the nine sections which are now to be published, and drafts were distributed to a selected list of critics by the National Research Council for criticism. The nine sections are now being revised in light of comments received and will be published by the American Society of Mechanical Engineers separately, as preliminary editions. They cover:

I General Terms
II Reactor Theory
III Reactor Engineering
IV Chemistry
V Chemical Engineering
VI Biophysics and Radiobiology
VII Instrumentation
VIII Isotopes Separation
IX Metallurgy

An alphabetical list of the terms included in all sections will be issued with each.

It is planned that after several years in use, the Preliminary Edition of each section will be revised on the basis of reports from users and others invited to assist in suggesting changes. The sections will then be published together in a single book following their approval as American Standard.

Standardization of Optics, Z58

Sponsor: The Optical Society of America

Drafts of three proposed American Standards are now being circulated to the sectional committee. These are on Method of Spectrophotometric Measurement for Color; Method for Determination of Color Specifications from Spectrophotometric Data; and Alternative Methods for Expressing Color Specifications.

News Briefs

• • The new Elevator Rules and Regulations of the State of Maine call for use of the American Standard "safety code for elevators as approved by the American Standards Association." Some exceptions and additions to the American Standard have been included to take care of the State's special requirements. These are to become effective in July.

• • The views of the International Organization for Standardization on the need for coordinating standardization work of United Nations agencies with that of ISO is receiving world-wide publicity. The statement issued by ISO last November is being circulated to all United Nations members. The ISO has made available to UN more than 1300 copies in English and 550 in the French language for this purpose.

• • "The standardization of building materials in particular is necessarily of international interest, not only as regards standardization carried out by one country on the example of others, but also because building in many countries depends on the importation of building materials from abroad," the Government of Denmark commented recently to the United Nations. "For this reason an international standardization of the dimensions, quality, and the like, of materials is of immeasurable technical and economic importance."

• • The Federal Standardization Commission of Yugloslavia has been welcomed as a member-body of the ISO, bringing the total of national member-bodies to 29.

• • Twelve conferees attended the private seminar on Industrial Standardization held by Dr John Gaillard in New York, January 23 through 27, 1950, as announced in STANDARDIZATION (November, 1949). Eleven

of those attending represented industrial organizations: Davis & Furber Machine Company; Eastman Kodak Company; Jeffrey Manufacturing Company; M. W. Kellogg Company; Link-Belt Company (three representatives); Liquid Carbonic Corporation; Mergenthaler Linotype Company; and Wagner Electric Corporation (two representatives). One conferee was from the Office of the Chief of Ordnance, Department of the Army. This attendance increases to 61 the number of organizations represented at the seminars held by Dr Gaillard since June, 1947.

Another seminar will be held in New York along the same lines from June 19 through 23, 1950. Those wishing to register in advance should write to Dr Gaillard at 400 West 118 Street, New York 27, N. Y., or call him at the American Standards Association, Murray Hill 3-3058.

Dynamic Standards

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pretations. This committee will have the responsibility of assisting in uniform administration of the code requirements, and also of developing proposed changes designed to keep the provisions of the code up to date and alive. The changes proposed will be based on the questions and answers received concerning the interpretation of code requirements. The Committee on Interpretations will also be charged with responsibility for assisting administrators and users in applying the provisions of the code to conditions encountered from day to day.

Many questions on interpretation of other American Standards come to ASA headquarters every week. In all such cases the questions are referred to the sponsors and officers of the committees which developed the standards, in order that authoritative answers can be given to the persons raising the questions. In this way the officers of the committees are kept informed of the experiences of those using the standards and a picture is gradually built up to indicate the need for periodic revision.

While this service has been effective, it is not as well organized as that suggested by Mr Rehard, and it has been put into effect by but a few committees. It is believed, therefore, that any committee in charge of the development of a national standard that may be used by governmental agencies in establishing regulations could well discuss the points presented by Mr Rehard. Such discussion may show that procedures similar to those he suggests could be established to offer the service which he believes essential to the success of the national standardization program.

"ASA" Labels Are Used On Ladders

After the adoption of the American Standards Safety Code for Wood Ladders, A14.1-1948, the American Ladder Institute members decided to incorporate a label design for use of such members as produced ladders up to the new specifications.

A total of 250,000 labels was purchased and sold to the members at cost. The Institute is now arriving at the time when re-orders for these labels must be made.

One ladder manufacturer writes that he has given a prominent position in his new catalog and price list to ASA approved ladders. He now estimates that he will require an additional 75,000 labels for the balance of the year. A recent mailing of 1,500 catalogs helped stimulate the demand for ASA approved ladders.

The label carries the name of the Institute around the border and within the circle are the words: "Built to American Safety Standards as approved by ASA." Not all manufacturers use the label because they are specialists in various fields of ladder construction.

High Wires

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each standard are devoted to emphasizing this position.

Standard sizes are set forth for line hose, blankets, and sleeves; these represent current practice in most cases and should provide the customary benefits of standardization in this regard. On the other hand, in several of the testing procedures, alternate methods which have not yet come into general use are referred to, sometimes described in detail, in order to encourage trial use and the accumulation of data which will demonstrate suitability or otherwise. In all cases the aim has been to specify those performance characteristics deemed essential to insure the safety desired, while leaving the maker a free hand to devise and to improve.

Two other standards are still in genesis within the committee, one for linemen's rubber gloves and the other for the leather protector gloves to be worn over the rubber gloves. The current standard for rubber gloves (ASTM D 120-40; ASA C59.12-1942) has a long history, the first ASTM tentative standard specification for this article having appeared in 1921. In its new form this specification will probably cover at least three classes of gloves, designated by their levels of proof-voltage tests. It is hoped that these two standards will be ready before the first of 1951.

Building Exits

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of seeking safety without adequate guidance by hospital personnel. In buildings where this situation prevails, reliable means for the rapid release of patients must be provided, such as the remote control of locks, or by keying all locks to keys commonly used by attendants. Frequent inspection and proper maintenance are necessary to insure the dependability of the method of evacuation selected. . . ."

Other special provisions for hos-

pitals are intended to minimize the danger of fire, and to limit the spread of flame or smoke should fire occur.

A study of the causes of some of the most destructive hospital fires in recent years was issued recently in a booklet on "Hospital Fire Safety" published by the National Fire Protection Association, and prepared with the cooperation of the American Hospital Association. In this booklet, Roy Hudenburg, secretary of the Council on Hospital Planning and Plant Operation of the American Hospital Association and a member of the NFPA Committee on Safety to Life, comments: "I must admit that I have serious reservations with respect to the wide understanding of the basic problems in hospital fire safety. What I have seen and heard of hospital inspection does not give me much confidence that there is any widespread application of the basic theories of horizontal evacuation, the use of smoke barriers, and the provision of automatic detection or extinguishment equipment as set forth in that excellent guide, the NFPA Building Exits Code."

"It is hard to understand, of course," he remarks, "just why there should be any more hesitancy in requesting a board of trustees to spend $15,000 or $50,000 in major alterations to protect the lives of patients than there is to request investment in a $16,000 piece of X-ray apparatus.

"Now that it has been demonstrated beyond question that bad fires can happen to hospitals, there is no doubt that many boards of trustees will be requested to authorize the expenditure of substantial funds to protect the lives of patients."

AISI

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gations are still under way on behavior of beams, columns, and welded connections with emphasis on real strength of structure.

Research on the action of zinc and iron under rising temperatures, sponsored by the Committee on Steel Pipe Research, has shown that it is possible for the potential between iron and a zinc coating to be reversed and thus cause failure of the protective galvanized coatings on iron and steel. This is expected to lead to new developments in coatings for corrosion protection.

In standardization, the Institute has a different problem from that of most other industries. Because the products with which the Institute's members work is the raw material extracted directly from the mine, their control over the finished product cannot be as precise as that of the company using the processed iron or steel bar or sheet as its raw material. For this reason the Institute points out, tests for the ore cannot be standardized on a national basis. A company using ore from one mine has an entirely different problem than does a company using ore from another mine. A standard test for one does not necessarily apply to the other. On the other hand, the steel supplied by different mills must be as nearly identical as it is possible to make it when ordered on specification since in times of full production there is no one mill big enough to supply the daily requirements of such large customers of the steel industry as the automobile manufacturers.

"Standardization is not restrictive," declares Charles M. Parker, "On the other hand, it provides an orderly pattern as a basis for development."

He cites the list of standard steels developed cooperatively by the American Iron and Steel Institute and the Society of Automotive Engineers as an example. This list is the most important standardization job done by the industry, in the opinion of Mr Parker. It covers 94 percent of the nation's steels and provides an orderly pattern from the simplest carbon steels to triple alloys. There is a record of production experience behind each one of these standard compositions. Through the fact that this list of standard steel compositions is available, anyone who plans to develop a new kind of steel (nickel steel, for example) would not go into his work blindly. He already has the performance record of several nickel steels to study. From experience with these steels he can block out the area in which he has to work to develop the new properties necessary for the job he has to do. Without these standard compositions, he would have not just one base line from which to advance, but many.

The Institute cooperates with other organizations in the standardization program as well as in technical and research projects. It has long been a member and supporter of the work of the American Standards Association. It has a voice in making the policies of the Association through membership on the Board of Directors, and in the project work through membership on the Safety Code Correlating Committee, the Mechanical Standards Committee, and on the Standards Council. Its representation on 22 sectional committees gives it an active part in the development of American Standards for pipes, tools, coordination of dimensions of building materials, building code standards, safety of workers, and on general problems such as model laws and ordinances.

In addition to technical projects which have a direct application in industry and in standardization, the Institute conducts fundamental research in a variety of fields. One such project is attempting to recover the manganese which is now wasted in open hearth flush slags. Another is attempting to produce chemically pure iron to assist in the development of iron alloys. Still another is studying the ability of slag to remove sulphur from iron in the blast furnace. A study is also being made from a fundamental point of view of the part which slag takes in the refining actions of the open hearth furnace. This is being done with a view toward increasing the ability of slag to remove more unwanted elements from the metal faster than is now done. And an attempt is being made to develop refractory materials which will withstand higher operating temperatures and give longer life. These are fundamental research projects which are expected to have a profound effect on the future development of the steel industry.

American Standards Check List

No. of Copies	TITLES OF AMERICAN STANDARDS JUST PUBLISHED	Price
..... A9.1-1949 (2 ed)	**Building Exits Code (Revision of A9.1-1949)**	$1.00

This edition contains revisions of Section 8, Moving Stairways (formerly Escalators); Section 10, Alarm Systems; a major revision in Section 24, Hospitals and Sanitariums; Section 26, Hotels; and a new Section 29, Jails, Penal Institutions. (*Sponsor:* National Fire Protection Association)

..... A90.1-1949	**Manlifts, Safety Code for**	.55

This code applies to manlifts used to carry plant personnel. It covers the construction, maintenance, inspection, and operation of manlifts in relation to accident hazards to employees. (*Sponsors:* Association of Casualty and Surety Companies; The American Society of Mechanical Engineers)

..... B3.4-1950	**Gaging Practices for Ball and Roller Bearings**	.50

Gaging practices are established as referee methods to determine whether bearings conform to dimensional standards. The standard covers gaging loads, inner and outer ring, internal fit, and side run-out of lock nuts. (*Sponsor:* Mechanical Standards Committee)

..... B16.4-1949	**Cast-Iron Screwed Fittings 125 and 250 lb (Revision of B16d-1941)**	.60

This revised standard now covers pressure ratings, sizes, and method of designating openings of reducing fittings, marking, minimum requirements for materials, dimensions and tolerances, and threading. (*Sponsors:* Heating, Piping, and Air Conditioning Contractors National Association; Manufacturers Standardization Society of the Valve and Fittings Industry; The American Society of Mechanical Engineers)

..... C57.15-1949	**Step-Voltage and Induction-Voltage Regulators, American Standard for**	.50
..... C57.25-1949	**Test Code for Step-Voltage and Induction-Voltage Regulators**	.50

The American Standard for Step-Voltage and Induction-Voltage Regulators is a revision of the 1948 standard, with the section on accuracy classes brought up-to-date. The Test Code for use with the standard has just been developed as a separate document. (*Sponsor:* Electrical Standards Committee)

No. of Copies	TITLES OF AMERICAN STANDARDS JUST PUBLISHED	Price
..... C60.1-1949	**Electron Tubes Bases, Caps, and Terminals**	1.00
..... C60.2-1949	**Electron Tubes, Dimensional Characteristics of**	.50
..... C60.3-1949	**Gaskets for Water-Cooled Transmitting Tubes, Dimensional Characteristics of**	.35

These three standards contain outline drawings and the dimensional characteristics applicable to their respective subjects. They have been developed as part of the project dealing with electron tubes and allied sealed devices. (*Sponsor:* Joint Electron Tube Engineering Council)

..... Z10.7-1950	**Letter Symbols for Aeronautical Sciences**	1.25

In this standard two main tables list the symbols used for aeronautical sciences—letter symbols for primary concepts and letter symbols for secondary concepts (subscripts and superscripts). These listings are alphabetical by symbol. An alphabetical listing by concept is included in the appendix to facilitate use of the standard. The document also contains a section on the general principles of letter symbol standardization, and recommends designations for forces, moments, coefficients, etc. (*Sponsors:* American Society of Civil Engineers; American Institute of Electrical Engineers; American Society for Engineering Education; American Society of Mechanical Engineers; American Association for the Advancement of Science)

..... Z11.17-1949	**Burning Quality of Kerosine, Method of Test for (ASTM D187-49)**	.25

This method is intended for the determination of the burning quality of kerosine used for illuminating purposes. (*Sponsor:* American Society for Testing Materials)

..... Z11.59-1949	**Neutralization Value (Acid and Base Numbers) by Electrometric Titration, Method of Test for (ASTM D664-49)**	.25

The test for determination of acidic or basic constituents in petroleum products and lubricants is covered in this standard. (*Sponsor:* American Society for Testing Materials)

..... Z11.60-1949	**Oxidation Stability of Aviation Gasoline (Potential Gum Method), Method of Test for (ASTM D873-49)**	.25

The stability of aviation gasoline under accelerated oxidation conditions is determined by this method of test. (*Sponsor:* American Society for Testing Materials)

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